

University of Dundee

## MASTER OF SCIENCE

Nursing students' attitudes towards older people and nursing older people  
**a comparison of two attitudinal measurement scales**

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NURSING STUDENTS' ATTITUDES TOWARDS OLDER PEOPLE AND  
NURSING OLDER PEOPLE: A COMPARISON OF TWO ATTITUDINAL  
MEASUREMENT SCALES

LINDSAY HELEN DINGWALL

Dissertation submitted as a requirement for the award of

Master of Science by Research

University of Dundee

11<sup>th</sup> May 2018

## **DECLARATION**

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## Summary of the study

People aged 65 years and over are the largest users of health care services. Reports into healthcare quality suggest that healthcare professionals' ageist attitudes and behaviours may contribute to unsatisfactory experiences and avoidable harm to older patients. Solutions to improve quality, include recruiting nursing students at point of registration who hold positive attitudes towards older people and have the prerequisite skills and knowledge for effective care delivery. However, nursing students' attitudes could be influenced by the care cultures they engage with and they may be reluctant to seek employment in clinical areas with high volumes of older people.

At the time of this study, there was limited empirical evidence of nursing students' attitudes towards older people or their attitudes towards older people in a healthcare context. The aim of this study was to inform a gap in the research by

1. Exploring the factor structures and psychometric properties of a scale that measures attitudes towards older people (Kogan 1961) and a scale that measures attitudes towards nursing older people (McLafferty 2007).
2. Determining whether either, or both, scales are reliable and have sufficient sensitivity to detect any change in adult nursing students' attitudes towards older people over the first year of their adult nursing programme.

The research design used a quantitative within-subjects, longitudinal panel survey over an academic year with a convenience sample of three consecutive cohorts of Adult Field nursing students (N=530).

Collected data underwent Principal Components Analysis to explore the individual factor structure and psychometric properties of both scales. Extracted factors were used separately with repeated measures tests to measure nursing students' attitudes towards older people and nursing older people and to detect any changes over time.

Findings from this study suggest that nursing students' attitudes towards older people and nursing older people are positive and do not change over time. However, Kogan's (1961) scale in its current form may not be valid for use with current UK-based nursing students and requires further testing across more than one Higher Education Institute. Further psychometric testing of McLafferty's (2007) scale is also required before it could be used to inform the knowledge base relating to nursing students' attitudes towards nursing older people. To test both scales for discriminant validity, a variable should be introduced that measures nursing students' future intentions to nurse older people.

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## **Chapter 1 Background to the study**

### **1.1 Chapter 1 overview**

This chapter presents the introduction and background to the study, including a brief overview of the study's aims. The chapter starts with an exploration of current healthcare delivery for older people in the UK. The tensions and barriers to optimum health care delivery for older patients are critically appraised. The chapter continues with a critical appraisal of the solutions from public reports into care quality relating to nursing students. The chapter concludes with a critical focus on potential influences over nursing students' attitude formation towards nursing older people.

Literature used in this chapter was drawn from UK Governments' healthcare policy development and from the professional and public bodies, including patient groups, who advise on policy development or report on the current state of healthcare delivery.

### **1.2 Introduction**

The population of people aged 80 years and over, the "oldest-old", is growing faster than other age groups, substantially increasing the demands on UK-based health care systems (Scottish Executive Health Department (SEHD) 2005a 2005b; Oliver et al. 2014; United Nations (UN) 2015). Ageing increases the likelihood of living with at least one long term condition and an associated disability (SEHD 2005a 2005b; SEHD 2006; British Geriatric Society (BGS) 2010; World Health Organisation (WHO) 2014; 2015). Therefore, while people living longer is a healthcare success, there is a difference between life expectancy in years and healthy years lived (UN 2015; Purdy 2010; Mortimer & Green 2015). As expected, people aged 65 years and over are the largest users of health care services (Imison et al 2012; British Medical

Association 2017) but their healthcare delivery may not always be safe and effective (Wilkinson et al 2010; Francis 2013a 2013b; Keogh 2013).

Healthcare professionals' ageist behaviours may contribute to unsatisfactory older patients' healthcare experiences (Older People's Commissioner for Wales 2010; Frances 2013a; 2013b; Keogh 2013; Care Quality Commission 2016). However, professional and healthcare organisations counter that staff struggle to deliver optimal care to older people in healthcare systems that are unfit for purpose (Tadd et al 2011; Cornwell et al 2012; Royal College of Physicians of London (RCPh) 2012).

Solutions offered to improve the healthcare experiences of older people include recruiting nursing staff with positive attitudes towards older people and who have the prerequisite skills and knowledge for safe and effective care delivery (RCN 2012a; Francis 2013c; Keogh 2013).

Recruiting newly registered nurses into older people's nursing may be challenging (RCN 2007; RCPh 2012). Nursing students' attitudes towards nursing older people are likely to be influenced by their nursing programmes (Frances 2013; Tadd et al 2011; Cornwell et al 2012 Royal College of Nursing (RCN) 2014) and by healthcare professionals' attitudes working in strained healthcare systems (Cornwell 2012; RCPh 2012; Frances 2013c). Consequently, nursing students may be reluctant to seek employment in clinical areas with high volumes of older patients (RCN 2007; 2011).

There is however little supporting empirical evidence from within the UK which measures nursing students' attitudes towards older people. Neither is there published evidence that nursing students hold different attitudes towards nursing older people as patients than towards older people generally, or whether their attitudes change over time. This apparent gap in the literature is the rationale for undertaking this quantitative research study.

### **1.2.1 The purpose of the study**

This study was originally the first phase of a larger doctorate study. Data gathered from this study would have been used to explore whether nursing students' attitudes towards older patients could explain any discrepant or shared understandings with older people relating to illness representations and treatment perceptions of urinary incontinence. However, the second phase of the study was not undertaken and this dissertation focuses on the measurement of nursing students' attitudes. The aims outlined below, are explained more fully in Chapter 3.

1. To test the factor structure and psychometric properties of two attitude measurement scales. The first, Kogan's (1961) Attitudes towards Older People (KOP) scale, was the most commonly used measure in healthcare research at the time of the study. The second scale, McLafferty's (2005) Attitudes towards Nursing Older People (MANOP) was a locally derived attitudinal scale to measure attitudes towards nursing older people in a healthcare context.
2. To use the findings from the psychometric analysis of both scales to compare their reliability and sensitivity in measuring nursing students' attitudes towards older people and nursing older people and to determine whether nursing students' attitudes change over time.

### **1.3 Background to the study**

While some older people's health will decline rapidly towards acute illness and death (Beard & Bloom 2015), many older people require frequent hospital admissions as they fluctuate between periods of chronic and acute ill health and deteriorate slowly towards end of life



care (WHO 2014; NHS Benchmarking Network 2015). Consequently, older patients require increasingly complex healthcare interventions (SEHD 2006; Cornwell 2012; RCPH 2012; British Medical Association 2017).

Analysis of Hospital Episode Statistics found that older people in the UK account for more than 2 million unplanned hospital admissions per year and occupy at least 51,000 acute beds at any one time (Imison et al 2012). This is disproportionately high in relation to the older people population (Mortimer & Green 2015) and because models of acute care delivery traditionally managed single disease processes, current healthcare systems may not be coping with an increasingly older population with multiple co-morbidities, (Philp 2008; Oliver 2012; RCPH 2012).

UK health policy has recently focused on moving healthcare from hospital into primary care (Department of Health 2006; Scottish Government 2007; 2011a; 2011b; Edwards 2014; NHS England 2015). Evidence from clinical audit shows that where systems have been successfully redesigned to meet older people's care needs, health outcomes for older people improve and healthcare costs reduce (Smith et al 2015, cited in BGS 2016; Simons et al 2015, cited in BGS 2016). However, a Cochrane review by Ellis et al (2011) found that currently there is no definitive model to manage older people's complex care needs and associated pressures on hospital in-patient care have not been relieved. Many healthcare systems lack resilience to cope with older people who are admitted to hospital inappropriately (Conroy & Cooper 2010; Oliver 2012; NHS Benchmarking Network 2015) and these patients risk in-patient stays beyond clinical need (National Audit Office 2016). Conversely, the inadvertent consequence of successful service redesign has meant that older people who do require hospital admission, are frailer and more acutely ill than previous patient populations (Tadd et al 2011; RCPH 2012).

Overall, the clinical picture of in-patient care shows rising numbers of acutely ill and frail older people with multiple co-morbidities and complex care requirements. According to recent reports, these older patients could be at higher risk than other patient populations of being subject to discriminatory care, negative attitudes and, in some cases, harm during their health care journeys.

#### **1.4 Quality of health care delivery for older people in NHS hospitals**

The Department of Health (2001 pp. 6) states that “older people often require more intense, more skilled and more specialised nursing than younger adults”, but older patients’ experiences of care can be unsatisfactory. The Mid – Staffordshire NHS Foundation Trust public inquiry (Francis 2013a; 2013b; 2013c) is arguably the highest profile report into standards of care quality in the UK in recent years. However, similar findings are detailed in other inquiries and public consultations (The Patient Association 2009; 2011; Older People’s Commissioner for Wales 2010; Abraham 2011; Keogh 2013; Age UK 2015; Care Quality Commission 2016). This literature reports that satisfaction with the NHS is generally high, but older people’s patient journeys can be sub-optimal.

Surveys of older patients found that they want to be treated with dignity, as partners in care and not viewed as problems to be passed between clinical areas (RCN 2006; The Patients’ Association 2011). Older people also want healthcare professionals to avoid assumptions that they cannot understand or participate in their care (RCN 2006; Bowers et al 2009; Tadd et al 2011) and yet they are less likely than younger patients to be involved in decision making about their treatment options or discharge destinations (Cornwell et al 2012). Older people are also more likely than other patient populations to be transitioned (boarded) between wards without a clinical reason (RCPh 2012; Tadd et al 2011; McMurdo & Witham 2013).

These transitions increase rates of delirium and falls with harm in the older patient population (Oliver 2012; Healthcare Improvement Scotland 2015).

Inquiries into patient care delivery detail common failings that cause psychological distress and physical harm (Parliamentary and Health Service Ombudsman 2011; Francis 2013a; Age UK 2015; Care Quality Commission 2016). Reports based on scrutiny of care and the care experiences of older people and their carers, reflect care omissions relating to communication, respect, discriminatory attitudes, privacy, autonomy, recognition of increasing cognitive impairment, assistance with hygiene, nutrition and hydration, continence care and pain management, (Centre for Policy on Ageing 2009; Patients' Association 2011; Francis 2013a; Keogh 2013; Care Quality Commission 2016; Parliamentary and Health Service Ombudsman 2011; Age UK 2015). The ramifications of poor care delivery cannot be overstated. Omissions of care mean that older people are more likely to deteriorate rapidly and die from conditions such as acute kidney injury due to dehydration, sepsis and hypoactive delirium than younger patients (BGS 2012; Wilkinson et al 2010; NHS Benchmarking 2015). However, it was discriminatory care that caused the greatest concern to older people and their relatives, exemplified by those who raised perceptions of being treated by staff with "callous indifference" (Francis 2013a p 19).

Reports also suggest that sub-optimal care delivery is multifactorial (Oliver 2012; Frances 2013c; Keogh 2013; Age UK 2015). Frances (2013c) and (Keogh 2013) identify that a lack of strategic leadership in reshaping NHS care systems has led to an unsustainable strain on health care professionals' abilities to cope with the increasingly complex care demands of older patient populations. Adding to these pressures are possible shortcomings in healthcare professionals' knowledge and skills that have been subsumed by weak leadership,

impoverished cultures of care, evolving care systems, resource and workforce shortages (Care Quality Commission 2011; 2016; Tadd et al 2011; RCN 2008; 2011; Francis 2013c Keogh 2013; Age UK 2015).

An overarching theme in the literature cites the contribution of poor staff attitudes and unprofessional behaviour to unsatisfactory older patient journeys (Older People's Commissioner for Wales 2010; Parliamentary and Health Service Ombudsman 2011; Patterson et al 2011; Frances 2013a; 2013c; Keogh 2013; Age UK 2015; Care Quality Commission 2016). Complaints of poor care quality for older people in the NHS are made at twice the rate of all other patient groups combined (Abraham 2011, cited in Parliamentary and Health Service Ombudsman 2011). Most complaints in England and Wales relate to clinical treatment (42%) and staff attitudes (19%). In Scotland, staff attitudes are the largest cause for complaint (52%) followed by poor communication (42%) (The Health and Social Care Information Centre 2012). Societal, institutional, and personal shifts towards positive attitudes towards older people are fundamental to improving future NHS care delivery (Sanz 2011; The Patients' Association 2009; 2011; Francis 2013a).

### **1.5 Attitude formation**

Smith et al (2003 p 633) describe attitudes as "favourable or unfavourable evaluations of and reaction to objects, people, situations or other aspects of the world". Attitude formation is influenced by cognitive (what is known) and affective (what is felt) evaluations of an object or subject (Eagly & Chaiken 1992; 1993) which are then conceptualised as beliefs for future encounters (Fishbein & Ajzen 1975; Eagly 1992).

Attitudes may be partly predictive of behaviour (Ajzen 1985; Glanz et al. 2008). Cognitive and affective responses can be expressed through behavioural intentions and actions which are assumed to demonstrate either positive or negative attitudes towards a subject (Eagly & Chaiken 1993). However, behaviour may also be influenced by group attitudes (Ajzen & Fishbein 1975), for example healthcare professionals' collective attitudes towards older people could influence the care culture and the quality of healthcare delivery. Reports into care quality describe attitudes in behavioural terms as the use of dismissive and/or patronising language, inattention to fundamental needs and a failure to diagnose, afford choice or maintain dignity (Parliamentary and Health Service Ombudsman 2011; Frances 2013a; 2013c; Keogh 2013; Age UK 2015; Care Quality Commission 2016) Potential influences over healthcare professionals' attitudes and the impact on care delivery for older people are discussed below.

### **1.6 Healthcare professionals' attitudes towards older people**

The circumstances in which healthcare professionals encounter and evaluate older people clinically could influence their attitudes towards them as patients. Stereotypically in society, older people are viewed as a homogenous group and linked to perceptions of increased dependence, financial burdens and pressures (Philp 2007; Roberts & Robinson 2010; Independent Commission on Dignity in Care 2012). Consequently, any healthcare professionals' lack of caring behaviours may be reflective of societal and cultural ageism (Cornwell 2012; Keogh 2013). Evidence from staff and patient experiences suggest that older people may be denied care because of healthcare professionals' stereotypical expectations of their decline and dependence (Ham & Berwick 2017). Older people may not even recognise these discriminatory practices because they too subscribe to stereotypical views of ageing

and have low expectations of treatment (Bowers et al 2009; RCPH 2012; Care Quality Commission 2016).

Nonetheless, how care systems are organised may be more influential in the development of healthcare professionals' attitudes towards older people as patients than general societal attitudes. Staff report feeling pressured and unsupported in meeting the increasing care needs of patients (Tadd et al 2011; RCPH 2012; Cornwell 2012; Keogh 2013), but they may not recognise or acknowledge the external source(s) of tensions in care delivery, such as inadequately structured models of care (RCN 2012b; Francis 2013a; Keogh 2013). Instead staff can resent having to treat sick older patients, especially in acute care settings, perceiving that they are 'the wrong patient on the wrong ward' (Tadd et al 2011, page 3; RCPH 2012). Those older people who present with multi-pathologies that require complex, but non-technological, care interventions can be ignored in favour of younger patients, perceived as more deserving of treatment (The Patients' Association 2011; RCPH 2012). The resulting cascade of ill health and dependence may confirm staff perceptions of the futility of care (RCPH 2012; Ham & Berwick 2017).

Abraham (2011 cited in Parliamentary and Health Service Ombudsman 2011) suggests that extra resources alone would not solve the ongoing deficits in healthcare quality for older people. The Department of Health (2014a p 2) demanded a "call to action" to respond to the 290 recommendations from the Francis Report, twenty-eight of which relate directly to nursing and the education of nursing students as the future workforce (Francis 2013c).

### **1.7 Influences over nursing students' perceptions of nursing older people**

Successful strategies to address poor healthcare delivery hinge on recruiting and retaining nursing staff with positive attitudes and the skills and knowledge to care for older people (RCN 2012a; Francis 2013c; Keogh 2013). Francis (2013c, p172) described older people's care as a "backwater", but one solution to improve the workforce capacity and capability is the recruitment of well-educated and clinically prepared students at registration into areas with older patient populations (RCPh 2012; Francis 2013c; Mortimer & Green 2015). To enhance the credibility of specialist older people's care, Francis (2013c) recommended the introduction of a registered older person's nurse. However, this recommendation was rejected by the UK Government and the nursing professional body (DoH 2013; NMC 2013). The Department of Health maintained that all nurses should be knowledgeable about nursing older people in any clinical adult setting (DoH 2013; DoH 2014a), and directed Higher Education Institutes and NHS bodies to work in partnership to assure the focus of nurse education relating to older people's healthcare (Department of Health 2014b).

Research into staff and service user experiences found that previous ineffectiveness of nurse education to emphasise the complexity of older people's healthcare, or to effectively prepare students for the clinical practice they witness has influenced nursing students' attitudes towards nursing older people (Tadd et al 2011; Cornwell et al 2012). Historically, nursing education relating to older people's care was not delivered to nursing students and clinical placements were only used to learn "basic skills" (Eaton 2012; Cavendish 2013). Currently, nursing older people is still perceived as a low status career among nurses (RCN 2012b). Undergraduate nursing students report that education relating to older people is cursory (RCN 2008) and the specialist skill set required is undervalued (Cornwell 2012).

Nursing students' preconceptions of the high status of acute nursing may be compounded by recruitment campaigns which focus on acutely ill young people and highly technical care (Hughes 2017). These students risk being disappointed by the sub-acute care needs of older people in these acute areas (RCN 2016; Hughes 2017). Nursing students commonly enter the profession with an intention to "care" but, like their registered counterparts, begin to place greater value on short term and technological "cures" (RCN 2004, 2012b). Consequently, nursing students may perceive nursing older people as unskilled, physically laborious and routine, where knowledge is not required (McLafferty & Morrison 2004; RCN 2012a; Patterson et al 2011).

How students experience the care culture and staff attitudes towards patients in placements influences their appreciation of their placement (Tadd et al 2011; RCN 2012a; 2014). Professional socialisation, a combination of education and clinical experience (RCN 2013) can influence nursing students' professional growth and appreciation of practice (Patterson et al 2011). If nursing students encounter older people under the pressurised conditions described earlier in the chapter, they may form negative attitudes towards older people, or nursing older people. When nursing students engage in ageist or discriminatory care cultures where older patients' needs are unmet, they can role model the same behaviours they witness and subsequently develop poor evaluations of older people as patients (Tadd et al 2011; RCN 2013).

Survey based research is now emerging in the UK to provide limited evidence that nursing students' perceptions of older people's care may be a barrier to recruiting them as registered nurses (RCN 2012a; 2014). However, at the time this study was developed, there was little empirical research into the measurement of nursing students' attitudes towards older people



or nursing older people. There was also little evidence of whether nursing students' attitudes change over time and after clinical placements nursing older patients. Therefore, there was a gap in the research knowledge of nursing students' attitudes that could, in future, be predictive of recruitment intentions.

## **1.8 Chapter conclusion**

Findings from this chapter highlight deficits in older people care. Higher numbers of older and sicker people are using healthcare systems which may be unprepared for their complex needs. Inquiries and public reports found that older people may encounter discriminatory and ageist care which could be caused by healthcare workers' poor attitudes towards older people. Developing a skilled nursing workforce who have the knowledge and positive attitudes to nurse older people is paramount to improving their healthcare delivery. Nursing students are central to this workforce as future healthcare providers, but limited evidence has emerged that they may not value nursing older people.

This study aims to add to current evidence by undertaking an empirical research study into the measurement of nursing students' attitudes towards older people and towards nursing older people.

## **Chapter 2 Measurement of nursing students' attitudes towards older people and nursing older patients: a review of the literature**

### **2.1 Introduction**

Chapter 1 established that increasing numbers of older people in the UK are using in-patient services and may be subjected to discriminatory and potentially harmful care (Francis 2013a; Keogh 2013). Recruiting nursing students on registration who have the prerequisite skills, knowledge and attitudes to nurse older people is paramount to improving care quality (Francis 2013c; Keogh 2013). Emerging evidence suggests that nursing students may be reluctant to pursue careers nursing older people but there may be a gap in the UK-based literature that provides supporting empirical evidence of nursing students' attitudes towards older people and nursing older people.

This chapter will review the literature to critically appraise what is known about the measurement of nursing students' attitudes towards older people and nursing older people.

Chapter 2 begins with a description of the literature search processes used to undertake a critical appraisal of the development of Kogan's (1961) 34-item Attitudes Towards Older People (KOP) scale and of McLafferty's (2005; 2007) 30-item Attitudes towards nursing older people (MANOP) scale. At the time of this study, Kogan's (1961) scale was the most commonly published scale in healthcare research. McLafferty's (2005;2007) healthcare contextualised scale was developed in the same nursing school as this study to measure attitudes towards nursing older people. Testing of the psychometric properties of the 30-item MANOP has not been published in the literature.

The chapter continues with a critical review of research into nursing students' attitudes towards older people and nursing older people and concludes with a critical appraisal of the findings from a focused review of nursing related research that tests the psychometric properties of Kogan's (1961) KOP scale. Literature related to the early development of attitudinal scales has been excluded because of the word limit for this study, but are referred to in the appraisal of Kogan's (1961) work.

## **2.2 Literature review**

The search used databases associated with health care, sociology and psychology to capture literature from the widest perspective. The initial search strategy findings were later refined, as suggested by Cooper (1998) and Whittemore & Knafl (2005), to focus on primary research which measured nursing student's attitudes and primary research which tested the psychometric properties of Kogan's (1961) scale. The process for the search strategy is outlined below.

### **2.2.1 Aims of the literature review**

1. To review the development and use of attitudinal measures towards older people and nursing older people in the nursing student population
2. To appraise primary research into measuring nursing students' attitudes towards older people and towards nursing older people
3. To establish the psychometric properties of a general attitudinal measure towards older people and a contextual measure of attitudes towards nursing older people

### 2.2.2 Literature review search method

A computerised search was undertaken to find relevant English language literature. Initially, no date limit was applied to capture early research into the development of attitudinal scales. Databases searched were: MEDLINE, CINAHL (ASSIA), BNI, SCOPIS, GOOGLE SCHOLAR, PSYCINFO and COCHRANE reviews. Journals were hand searched for older, seminal studies which were outside the available electronic search dates.

Key words combined with BOOLEAN terms were “attitudinal measures”; “measurement scales”; “attitude measure\$”; “attitude\$ scales”; “psychometric”; “psychometric properties”; “psychometric test\$”: “older adults”; “older people”; “elderly”.

The findings from the initial search were filtered into a focussed search on nursing students and healthcare. A date limit of 1990 to the present day captured research undertaken after pre-registration nursing moved into Higher Education Institutions (United Kingdom Central Council 1986). The search terms added were: “nursing student\$”; “student nurse\$”; “attitudes” “nursing attitudes” “healthcare attitudes”; “acute care”; “care homes”; “care of the elderly”; “elder care”; “secondary care”; “nurse education”; “undergraduate nurse education”. To accommodate as wide a perspective as possible the international derivatives ‘geriatrics’ and ‘gerontological nursing’ were included. A series of combined searches were undertaken using BOOLEAN operatives and, where possible on the databases, these search terms were also used as search filters. To ensure that the literature retrieved met the search strategy aims, inclusion and exclusion criteria were applied (Polit & Hungler 1997).

*i. Literature search inclusion and exclusion criteria*

Literature was included if the primary research focus was on

- Attitudinal scales developed for older people as a general population group
- Measurement of attitudes towards older people
- Measurement of attitudes towards older people as a patient group
- Critical analysis of attitudinal scales for older people or older patients
- Primary research studies
- Psychometric testing of attitudinal scales for older people or older patients
- Undergraduate nursing students were the sole research participants or a significant participant group
- Measuring nursing student's attitudes towards older people or nursing older people
- Older people in healthcare settings was the sole, or significant, research focus
- Literature was published in peer-reviewed journals

Literature was rejected if the research focus was on:

- Older people as a subset of a group other than in healthcare (e.g. older workers)
- Older people with specific health conditions, because the aim was to measure attitudes towards nursing older people and not, for example nursing older people with cardiac failure or dementia.
- Opinion or editorial pieces
- Magazines or unpublished research theses

### **2.2.3 Search results**

The literature retrieved was scrutinised and duplicate publications were discarded (N = 58). Abstracts were read to assess the inclusion and exclusion criteria (Peters et al 2015) which eliminated N = 47 studies. The full text of each resource was read and N = 30 studies were eliminated because the studies were qualitative, not primary research or the study population did not meet the criteria. Thirty one studies were retained for review. The PRISMA diagram in Figure 2.1 illustrates the process of reviewing and retaining the literature for review.

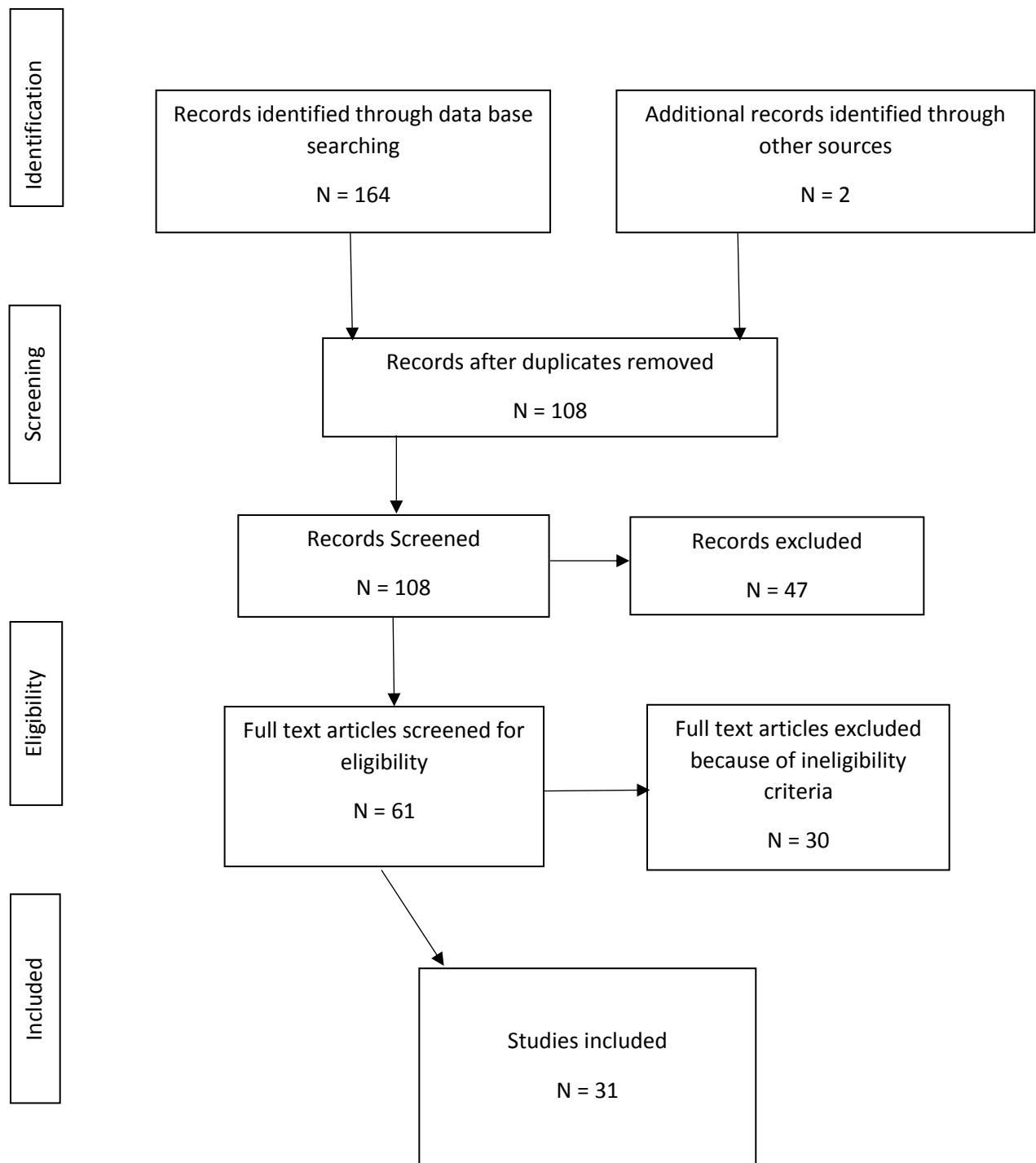
Only primary quantitative research studies were included in the review, but reference is made to seminal research in the development and psychometric properties of attitudinal measures. A glossary of terms associated with testing the psychometric properties of measures is provided in Appendix I.

The literature reviewed in this chapter is mainly the literature retrieved up to and including 2008, when the data collection in this study started. However, there were only two papers published before 2008 which tested the psychometric properties of Kogan's (1961) scale and so literature after 2008 was included for review in this chapter. Additional literature relating to nursing students' attitudes towards older people and older patients published post-2008 (n= 10 studies) is presented in Appendix II and discussed in Chapter 5 in relation to this study's findings.

Ten of the 31 primary research studies were designed to measure nursing students' attitudes towards older people or nursing older people and met the criteria for inclusion (see Figure 2.1). Table 2.1 provides an overview of the country of origin, the study population size and demographics and the research methods used in each study. Key findings from the studies are appraised in section 2.5.

Six additional articles (Tuckman & Lorge 1953; Golde & Kogan 1959; Brubaker & Powers 1976; Palmore 1977; Kogan 1979; Schmidt & Boland 1986) were retrieved during the search process. Although they were not reviewed under the search criteria, they were retained for use as supporting information to appraise the development of Kogan's (1961) scale. One systematic review (Liu et al 2013) was retained to contribute to discussion of this study in Chapter 5.

**Figure 2.1 Prisma Flow diagram of the search process**



### 2.3 The development of Kogan's (1961) Attitudes Towards Older People Scale

Golde & Kogan (1959) hypothesised that older people in the US faced the same discrimination as minority groups based on ethnicity, race, religion and disability. Kogan (1961) developed his scale to measure the latent, or hidden, variables of attitudes towards older people who lived in the community as a "quasi-minority" (Kogan 1961, p44). He thought that older people, although not demographically a minority, would be perceived with the same prejudices as other minority groups. Therefore, the KOP scale was not initially developed to measure attitudes towards older people in general (Kogan 1961). Kogan developed his 34-item scale with 17 negative statements (OP-) paired with 17 "matched" positive statements (OP+).

Scale items originated from a variety of sources. The original attitudinal measure towards older people, the Tuckman-Lorge Attitude Questionnaire (TLAQ) (Tuckman & Lorge 1953a), was criticised as having poor psychometric properties (Kogan 1979; Schmidt & Boland 1986). The TLAQ included number of factual statements, for example, "*they need glasses to read*" and agreement inferred a negative attitude (Brubaker & Powers 1976; Kogan 1979). Despite his criticism, Kogan (1961) incorporated some items from the TLAQ into his scale. Other items were derived by Kogan (1961) substituting "older people" for terms used in existing anti-minority scale items for example Gilbert & Levinson's (1956) Attitudes Towards Mental Illness scale and Adorno et al's (1950) Anti-Negro scale (both cited in Kogan 1961). Kogan developed items using "intuitive" derivation from "societal stereotypes and feelings" (Kogan 1961, p 45), not generally regarded as a robust method of item development (Eagly & Chaiken 1993; Oppenheim 2000).

Kogan (1961) used a 7-point Likert scale ranging from "strongly agree" (value of 7) to "strongly disagree" (value of 1). Missing data was allocated a "neutral" value of 4 and the use



of this neutral value is discussed further in Chapter 3. Kogan (1961) analysed the data into seven a priori themes instead of using factor reduction methods because the KOP items were integrated with other anti-minority scales.

To test KOP, Kogan (1961) used a cross-sectional survey with three cohorts of  $n = 482$ , psychology students from two Universities. Data were collected at two unrelated time points but were analysed together. Kogan (1961) found a positive linear association between the positively and negatively worded scales. The subscales (OP – and OP +) labelled “Appreciation” and “Prejudice” had unequal psychometric properties. Kogan (1961) reported that OP- was the more reliable set with Spearman Brown reliability coefficients from 0.73 to 0.86. OP+ had weaker internal consistency, from 0.66 to 0.76. Kogan (1961; 1979) suggested that participants disagreed with negative statements more consistently than they agreed with the positive. He did not explain why the Spearman Brown test was used instead of reporting reliability with Cronbach’s alpha which is more usual in scale research (Eisinga et al 2013).

Kogan (1979, p 15) later defended his scale as a unidimensional scale which measured a “global evaluative (positive-negative) dimension” and suggested that undertaking factor analysis to identify multidimensional variables within the scale would not improve its use. He did indicate that future research could extract factors because they might predict behaviour, especially in healthcare, where a range of diverse behaviours can be observed (Kogan 1979). However, he also noted that healthcare workers may already hold established attitudes towards older people and using KOP with participants who had no previous contact with older people in a care setting may provide more meaningful data (Kogan 1979).

A scale should have content validity, i.e. measure what it purports to (Oppenheim 2000; Coolican 2009) and KOP may not have content validity with present day nursing students in

the UK (Oppenheim 2000). The scale is over 50 years old and was designed to measure whether attitudes towards community dwelling older Americans were similar to attitudes towards minority populations (Golde & Kogan 1959; Kogan 1961). Studies which test the psychometric properties of KOP are appraised in section 2.6.

The broad category of “older people” suggests that older people are homogenous (Kogan 1979), but older people can be sub grouped, for example, older workers or older patients (Kogan 1979; Brewer et al 1981). Scales should measure attitudes towards older people in these contexts because of the potential for different measures of attitudes (Kogan 1979; Schmidt & Boland 1986). McLafferty (2007) developed a health specific measure for relating to nursing older people as a patient group.

#### **2.4 The development of McLafferty’s (2005; 2007) Attitudes towards Nursing Older People (MANOP)**

McLafferty used qualitative focus groups to generate her scale items (McLafferty & Morrison 2004; McLafferty 2005). Stewart and Shamdasani (1990) suggest that perspectives not apparent in the literature can emerge through focus group data to improve content validity for the same target study population. Furthermore, the language and perspectives elicited may be more relevant to the phenomenon being explored (Morgan 1988; Oppenheim 2000). McLafferty (2004) used a series of focus groups with nursing lecturers, registered nurses from specialist older adult and acute care settings and Year 3 nursing students.

McLafferty (2004; 2007) did not publish the interview guide for the focus groups, which according to Adams and Cox (2008) could affect the replicability of the study. Ten themes

emerged from the data from which eighty scale items were extrapolated and used to develop the original attitudinal scale. A questionnaire piloting the scale was administered to nursing students (N = 385). The scale was reliable with a Cronbach's alpha of .78.

Exploratory Principal Components Analysis (PCA) with factor loadings of  $\geq 0.4$ , recommended by Tabachnick & Fidell (2007), extracted 45 items over 8 factors, explaining 37% of the variance of the observed variables within the scale. The factor interpretations related back to the thematic analysis from the focus group data (McLafferty 2007). The scale items were reduced after reliability analysis of each extracted factor, using item deletion methods (McLafferty 2007). The shortened 36-item scale loaded onto 6 factors with a reliability co-efficient of 0.78. A second pilot study reduced the scale further to 20 items with a reliability co-efficient of 0.70 (McLafferty 2005), but there was no description of how or why items were dropped from the 36-item scale.

McLafferty (2005) used the 20-item scale to measure attitudes towards nursing older people in a cross-sectional design of three independent cohorts; nurse teachers (n=59), nursing students before (n=82) and after clinical placement (n=80) (see Table 2.1) Deltsidou et al (2010) replicated McLafferty's methods scale in a cross-sectional study with nursing students and nursing lecturers in Greece. Both studies found that nursing students hold mostly positive attitudes towards older people but that lecturing staff held significantly more positive attitudes overall. At the time this study was undertaken, Nolan et al's (2006) Perceptions of Working with Older People scale was under revision from the original unpublished scale developed in 2001 (Nolan et al 2001). The scale measures items in relation to perceptions of the environment and career prospects rather than older people as patients.

Nolan et al's (2006) scale and other contextually developed measures are discussed in relation to the findings from analysing MANOP (McLafferty 2005) in Chapter 5.

McLafferty has made no claim re the psychometric properties of any version of the MANOP and, unlike the more established KOP scale, there are no papers which further test the psychometric properties of the revised MANOP.

## **2.5 Nursing student's attitudes towards older people and nursing older people**

Literature were read and organised into three key themes, for review. This section provides a critical appraisal of the literature over these key themes.

1. Summary of the research methods used to measure nursing students' attitudes
2. Relationships between nursing students' attitudes and demographic variables
3. The influence of educational interventions on nursing students' attitudes

### **2.5.1 Summary of the research methods used to measure nursing students' attitudes**

Of the ten studies reviewed, five used a cross-sectional design to compare attitudes towards older people, either between nursing student cohorts at different stages of their programmes (McKinlay & Cowan 2003; Hweidi et al 2006), between nursing students and other healthcare-related professionals (Lookinland & Anson 1995; Söderhamn et al 2001; Rosher & Robinson 2005). Two used a cross-sectional design to compare attitudes towards nursing older people between nursing student cohorts and nurse teachers (McLafferty 2005; Delsidou et al 2010).

In the three remaining studies, Haight et al (1994) used a longitudinal study over three years with a single cohort of students using pre-post tests of attitude measurement. Ryan et al (2007) identified using a longitudinal study over a year, but used only one pre-post test with a single student cohort. Sheffler (1998) undertook a pre-post test design with a single cohort

of nursing students and nursing faculty to measure attitudes towards and knowledge of older people.

All studies except two (Rosher & Robinson 2005; McKinlay & Cowan 2003) used Kogan's (1961) KOP scale. To measure the effects of a practice-based intervention on nursing and medical students' attitudes towards older people in care homes, Rosher & Robinson (2005) used a Health Professionals Beliefs and Opinions about Elders (HPBOE) scale developed by the authors. No data relating to the development, or psychometric analysis, was available for the HPBOE scale. Because some items of the HPBOE scale related to facts about older people, Palmore (1977) would suggest this scale had edumetric properties, i.e. the scale measured changes in knowledge rather than attitudinal change. Rosher & Robinson (2005) surveyed one population cohort and, to gauge the effects of a practice based intervention, surveyed a different cohort two years later. According to Kline (2000, real attitudinal change could not be measured under these circumstances, but the researchers reported a 14% increase in intentions to work with older people.

McKinlay & Cowan's (2003) Scottish multi-site study was a complex design based on the theory of planned behaviour (Fishbein & Ajzen 1975, cited in McKinlay & Cowan 2003). The study measured nursing students' attitudes towards caring for older people based on statistical analysis of nursing students' responses to vignettes. The vignettes, one which described poor caring behaviours and the other described positive caring behaviours "incorporated elements of Kogan's Old Person Scale (Kogan 1961) and Palmore's Facts on Ageing Quiz (Palmore 1977)" (McKinlay & Cowan 2003, p 301). Students' quantitative responses to the vignettes were compared to their scores on an attitudinal measure which

was developed by the researchers. The study findings cannot be generalised because there was no confirmation of the psychometric properties of the scale or replication of the study

The remainder of the studies outlines in Table 2.1 which measured attitudes towards older people, used Kogan's (1961) scale and accepted Kogan's original (1961) reliability analysis without questioning the scale's psychometric properties. Whether Kogan's findings in 1961 could be generalised to a nursing student population was not considered.

Hweidi et al's (2006) study used an untested translated version of KOP and may not have produced findings which could be generalised to other nursing student populations because cross-cultural comparisons between study populations cannot always be made (Billet et al 2002).

Studies using Kogan's (1961) scale used different Likert scale response options. Of the six studies, two used 5-point Likert scales (Soderhamn et al 2001; Ryan et al 2007). The other studies employed 6-point Likert scales which as discussed in Chapter 3, could affect generalisability of any findings because of differences in the "strength" of responses offered in different Likert scale options (Tabachnick & Fidell 2003; Bryman and Cramer 2008).

McLafferty (2005) measured attitudes towards nursing older people using a locally developed tool in a nursing context. The development of this scale is appraised under section 2.5. Deltsidou et al (2010) replicated McLafferty's (2005) study using a forward/backwards translation of a 20 item MANOP. However, the psychometric properties of the translated Greek scale were not published.

### **2.5.2 Relationships between nursing students' attitudes and demographic variables**

All the comparative studies that used KOP described participants' demographic variables related to measures of their attitudes. However, different participant variables were explored across the studies.

Older participants generally held more positive attitudes than younger participants (Haight et al 1994; Soderhamn et al 2001). Possible cohort effects, for example, whether different experiences in nursing care related to more positive attitudes (Coolican 2009) were not discussed, but registered nurses held more positive attitudes towards older people than nursing students (Lookinland & Anson 1995). Nursing Lecturers held more positive attitudes than nursing students (Sheffler 1998; McLafferty 2005; Delsidou et al 2010).

Haight et al (1994) found that increasing age of the participants and having a grandparent were variables more likely to be associated with positive attitudes. Haight et al (1994) found no association with gender, but males had less positive attitudes than females in two studies (Lookinland & Anson 1995; Soderhamn et al 2001). In all studies, males comprised a small percentage of the total study population. The largest male population, N=39 (16%) was found in Delsidou et al's (2010) Greek study, all other studies had 14% or fewer male participants and Hweidi et al (2006) did not report a gender split. Only Hweidi et al (2006) had the specific research aim of exploring relationships between attitudes towards older people and demographic variables. More positive attitudes towards older people were significantly related to being male, being in Years 3 and 4 of the nursing programme coming from lower income families and intending to work with older people (n=92). This was a cross-sectional study and intentions to work with older people related with experience of clinical practice or education were not explored.

Review findings show no consensus in the literature relating to what demographic variables correlate with positive attitudes towards older people. The studies which measured attitudes before and after educational interventions are discussed below.

### **2.5.3 Nursing students' attitudes towards older people relating to educational interventions**

Of the three studies using educational interventions, none explored the direct relationship between theoretical education and attitudes towards older people. Instead, all studies used clinical practice as all or part of the educational intervention. Haight et al (1994) used test-retest (n=6) analysis after students had met well older people, nursed older people in acute care and nursed older people with complex conditions. The interventions method was not fully explained and the potential influence of lecturing staff or theory was not explored. Instead Haight et al (1994) noted that there was an unspecified educational focus on older people in year 1 but in Year 2 "Faculty members were not well versed in ageing, nor particularly interested in it, but they were excellent faculty, well versed in disease and the nursing care of hospitalized adults" (Haight et al 1994, page 384).

Ryan et al's (2007) longitudinal study used a single pre-post test based on students visiting a well older person who lived in the community, was known to the student, but not a family member. Education relating to demographics of an ageing population and the impact of ageism was provided. Ryan et al (2007) found that students held positive attitudes towards older people at the start of the study and there were no significant changes to attitudes over time. However, students' Year 1 clinical placements ran concurrently with the visits to older people, which the authors acknowledged could have confounded the findings.

Sheffler's (1998) pre-post test design with a single cohort of nursing students, measured attitudes towards and knowledge of older people after a care home placement. Their



attitudes were also correlated to the attitudes of the faculty members responsible for their education. Sheffler (1998) was the only study to use Palmore's (1977) FAQ to compare knowledge of older people with measures of attitudes using Kogan's (1961) scale. Sheffler found that nursing students' knowledge of older people increased after care home placement and related to an improvement in attitudes. "Faculty" with more positive attitudes could influence nursing student attitudes but Bryman & Cramer (2008) would advise that at  $n = 3$ , the Faculty sample was too small to be substantiated.

No study retested attitudes towards older people over time to measure whether any attitudinal changes had been sustained after the educational intervention.

McLafferty (2005) compared nursing student and teaching staff attitudes towards nursing older people. Deltsidou et al (2010) replicated McLafferty's study, using a forward/back Greek translation of McLafferty's 20-item MANOP scale. There were no interventions in these comparative studies, but the scale items included attitudes towards the ability and credibility of nursing lecturers. Both studies found that lecturers had more positive attitudes than students towards nursing older people but not in relation to their own contribution to nurse education (McLafferty 2005; Deltsidou et al 2010). Students in Delsidou's study generally agreed that there is little to learn in older people's care and no special skills are required. The authors suggest that education could reduce stereotypical views but longitudinal research may be required for confirmation.

**Table 2.1**                      **Review of studies into nursing students' attitudes towards older people**

Author(s) Date Study aim	Haight, B.K., Christ, M. A., Dias, J. K., 1994	Lookinland, S., Anson, K., 1995.	Sheffler, S.J., 1998	Söderhamn, O., Lindencrona, C., Gustavsson, S.M., 2001	McKinlay, A., Cowan, S., 2003.
	To examine the impact of selected learning experiences on nursing students' attitudes towards older people	To describe and compare the attitudes of registered nurses (RNs) and health career work study students (HCS) and identify influencing demographic variables.	To examine nursing students' attitudes before and after care home placement To determine any relationship between nursing students' and faculty's attitudes and nursing students' attitudes and knowledge	To measure <u>feelings</u> toward older people among nursing students and registered nurses.	An exploration of attitudes towards what is important in caring for older people
Country of origin	USA	USA	USA	Sweden	Scotland/UK
Research method	Longitudinal design Test—retest survey with one experimental group, before and after educational interventions in Year 1 and 3	Cross sectional design A comparative descriptive-correlational study	Single cohort design Pre-post-test survey of attitudes and knowledge	Cross-sectional design quantitative survey	Cross sectional design Mixed method Quantitative survey – to identify a behavioural preference Qualitative data relating to vignettes
Attitudinal scale(s) used	Kogan (1961) Attitudes towards older people scale (6-point Likert scale) The Semantic differential scale (Rosencranz & McNevin 1969) A 32 item 7point Likert scale	Kogan (1961) Attitudes towards older people scale (6-point Likert scale)	Kogan (1961) Attitudes towards older people scale (6-point Likert scale) Palmore's (1977) Facts on Aging (sic) Quiz	Swedish version of Kogan (1961) Attitudes towards older people scale (5-point Likert scale)	Non-validated questionnaire based on theory of planned behaviour 5-point Likert scale
Study population	A convenience sample of n=86 Year 2-4 nursing students completed the study over a 3-year time frame; (91 % female; 9% male) N=57 completed all three data collections but only 16 completed fully	A purposive sample of n=61 registered nurses in one hospital (acute care) A convenience sample of n=62 high school students enrolled on a health career work/study course (91% female; 9% male)	Convenience sample of Year 1 n = 35 nursing students (86 % female 14% male) in one nursing school n=3 Faculty	Convenience sample of n = 151 nursing students Year 1 (n=86) and Year 3 and n =41 registered nurses (post-qualifying study) (females 94% males 6%)	Convenience sample of Year 1-3 n = 172 nursing students (92.5% female 7.5% male) across three Scottish universities.
Data analysis	One-way ANOVA for "gain" scores (differences in mean?) Repeated measures ANOVA	Descriptive statistics One-way ANOVA point-biserial correlational analyses	Two-tailed t test for change in attitude	Mann–Whitney <i>U</i> test (two-tailed probability) one-way ANOVA with	T tests One-way ANOVA

Findings/results	<p>Kogan was more sensitive to changes relating to variables (2 of 12 were significant -age and having a grandparent)</p> <p>Attitudes are more positive when relating to older relatives</p> <p>Attitudes were less positive at the end of the study than in the first year</p>	<p>Kop -ve scale demonstrated that registered nurses hold less negative attitudes than high school students</p> <p>No significant difference in positive attitudes.</p> <p>Gender and ethnicity have significant differences (males less positive, white nurses more positive)</p>	<p>Pearson product-moment correlation coefficient for relationships</p> <p>Attitudes improved after care home placement</p> <p>Knowledge improved and was correlated to attitudinal scores</p> <p>Faculty with positive attitudes had students with more positive attitudes</p>	<p>Bonferroni's post hoc test.</p> <p>Year 3 students have less negative attitudes than Year 1 (Kop -ve) <math>p &lt; 0.001</math></p> <p>Males less positive attitudes <math>p &lt; 0.001</math> but this is only 6% of the population</p> <p>No significant differences between use of OP + and OP – but the complete scale show attitudes improve with age <math>p &lt; 0.05</math></p> <p>RNs have more positive attitudes than nursing students</p>	<p>Complex single difference scores for the vignettes which were then subjected to ANOVA</p> <p>Nursing students perceived a level of control over behaviour towards older patients</p> <p>There is a correlation between behavioural beliefs</p>
Comments	<p>Note: Year 2 Hospital nursing “Faculty members were not well versed in ageing, nor particularly interested in it, but they were excellent faculty, well versed in disease and the nursing care of hospitalized adults” (page 384)</p> <p>Large attrition rate not discussed <math>n=118</math> to <math>n=57</math></p>	<p>Seven of 34 scale items had significant differences between population groups (<math>n=5</math> negatively worded and <math>n=2</math> positively worded items)</p>	<p>No data about whether attitudes are sustained</p> <p>Demographics were not significant</p> <p>Palmore's FAQ was treated as a knowledge based scale and not an attitudinal scale</p>	<p>Previously tested for reliability in the Swedish version</p> <p>No demographics relating to RN's clinical areas of work</p> <p>No details relating to education</p> <p>Previous psychometrics extracted 3 factors from KOP (Soderhamn 2000) <i>Printed in Swedish</i></p> <p>Psychometric studies printed in Swedish</p>	<p>Vignettes “incorporated elements of Kogan's Old Person Scale (Kogan 1961) and Palmore's Facts on Ageing Quiz (Palmore 1977)” (page 301)</p>

Author(s) Date	Rosher, R.B., Robinson, S., 2005.	McLafferty, E., 2005.	Hweidi, I.M., Al-Obeisat, S.M., 2006.	Ryan, A., Melby, V., Mitchell, L., 2007.	Deltsidou, A., Gesouli- Voltyraki, E., Mastrogiannis, D., Mantzorou, M., et al., 2010
Study aim	To determine the impact of the Eden Alternative (practice based intervention) on the attitudes of nursing students towards “elders” in care homes	To compare the attitudes of nursing students towards older people with nurse teachers’ attitudes	To describe Jordanian nursing students’ attitudes towards older people	Evaluate the effectiveness of an educational intervention on nursing students’ attitudes towards older people.	To investigate how teachers and nursing students view hospitalised older adults
Country of origin	USA	Scotland	Jordan	Northern Ireland	Greece
Research method	Cross sectional design Survey design Intervention: partnering a care home with a local school	Cross sectional survey design	Cross-sectional design quantitative survey descriptive correlation	Longitudinal design (1 year) Quasi-experimental single cohort pre- post-test survey design	Cross sectional survey design
Attitudinal scale(s) used	Health Professionals Beliefs and Opinions about Elders (HPBOE) 17 item scale (6-point Likert scale) Two additional questions relating to liking working with elders and career intention	McLafferty’s (2005) Attitudes towards nursing older people scale 20 item scale (5-point Likert scale)	Kogan (1961) Attitudes towards older people scale (6-point Likert scale and forward/back translation to English) demographic questions	Kogan (1961) Attitudes towards older people scale (5-point Likert scale)	McLafferty’s (2005) Attitudes towards nursing older people scale 20 item scale (5-point Likert scale) Forwards/back translation to Greek and piloted for face validity
Study population	Convenience sample of: Pre-intervention n = 61 students (6% medical, 18% LPN and 64% RN students) Post intervention two years later n = 73 students (4% medical, 55% LPN and 41% RN students)	Convenience sample of two Year 1 nursing student cohorts and a cohort of nurse teachers from one University Cohort 1 (post theory and clinical placement) n = 64 Cohort 2 (post theory, pre-placement) n = 55 Nurse teachers n = 55	Convenience sample of n=243 Years 1-4 undergraduate nursing students from one university Gender split not reported	Convenience sample Year 1 students from one university. Time 1 n=130 students (94% female, 6% male) Time 2 n=94 students (96% female, 4% male)	Convenience sample of in a single nursing school N = 245 nursing students (first, fourth and fifth semester) n = 76 teachers (84 % female 16% male)
Data analysis	Two sample t test for Parametric data (n = 12 of 17 items) Wilcoxon rank-sum test on n=5 non-parametric items	ANOVA with Scheffe test for significance	t test for dichotomous variables (demographics) Pearson correlation for variables that measured on continuous level (KOP)	Descriptive statistics Mann-Whitney U-test Kruskal-Wallis Wilcoxon signed rank test	Kruskall-Wallis H test with post-hoc analysis using Dunn’s test The non-parametric Mann–Whitney–U test was used for the comparison between independent groups
Findings/results	No change in medical students. Eight items were significantly	No difference between the nursing student cohorts	More positive attitudes towards older people correlate	No significant change in nursing student attitudes.	Junior students had less positive attitudes. More senior

	<p>more positive in the second survey</p> <p>Career intentions rose from 5% (n=3) to 19% (n=14)</p>	<p>Significant differences in 10 items between nurse teachers and student cohorts mostly relating to clinical practice</p> <p>Nurse teachers had higher means except for the items relating to teaching knowledge and roles where they perceived themselves as having poorer abilities than the nursing students did.</p>	<p>with gender (male), income (lower), year of programme (years 3 and 4) and intention to work with older people (37.8% of sample population)</p>	<p>Students with neutral scores pre-test shifted to positive post-test but not significant at <math>p &lt; 0.05</math></p>	<p>and positive attitudes attributed to education rather than clinical experience</p> <p>Students did not recognise the skills and do not find caring for older people interesting or career enhancing. Lecturers are noted to be out of date and ill informed.</p>
Comments	<p>No data relating to the development or psychometrics of the scale.</p> <p>Some item construction relates to facts e.g. "Are complex, often presenting with vague symptoms"</p> <p>Other items relate to compliance e.g. "Understand their health care provider's limitations in terms of time and knowledge"</p>		<p>Education and practice relating to older people care in Years 3 and 4</p> <p>Social norms and culture may influence attitudes but this was not explored</p>	<p>Experimental strategy:</p> <p>Well older person already known to the student</p> <p>No retesting for whether attitudes were retained</p> <p>Missing data identified as a limit. No discussion of whether it was MAR and how it was managed</p>	<p>Students appear to be subscribing to stereotypes and this may be through socialisation</p>

As discussed above, clinical placements were treated as educational interventions and no study explored variables in clinical practice that could influence nursing students' attitudes towards older people. McKinlay and Cowan's (2003) study tested whether, theoretically, nursing students could be influenced in their behaviours in clinical placements, not only by their attitudes, but also by how they think others would wish them to behave towards older patients. The study found that nursing students' behaviours were driven by what they thought that registered nurses would want them to do (McKinlay & Cowan 2003). However, perceptions of registered nurses were not explored as a variable which could influence nursing students' attitudes in any of the studies (Haight 1994; Sheffler 1998; Rosher & Robinson 2005; Ryan et al 2007).

There are few findings from the literature which can be generalised to other nursing student populations and there is a gap in the literature relating to robust longitudinal research that measures attitudes towards older people over time using any measurement scale, including Kogan's (1961) scale. McLafferty's (2005; 2007) healthcare contextual scale has been used in cross-sectional studies, but not over time to detect change in attitudes towards nursing older people. This study has used Kogan's (1961) scale and McLafferty's (2005) scale as the scales to measure nursing students' attitudes. The next section of the chapter critically appraises the development of these scales and what is known about their psychometric properties.

## **2.6 Research into the psychometric properties of Kogan's (1961) Attitudes towards older people**

As described earlier in this chapter, Kogan (1961) tested his scale in different circumstances to how it might be used in healthcare today. Therefore Kogan's (1961) scale may not have

construct or discriminant validity within a current UK healthcare context (Oppenheim 2000; Coolican 2009). Six studies were found during the literature search that tested the psychometric properties of KOP with nursing students. No studies originated in the UK and Table 2.2 provides an overview of the studies including country of origin, population sizes research methods and the main findings. The sections below appraise issues relating to translation of KOP for non-English speaking populations and the administration and analysis of KOP.

### **2.6.1 Translation of Kogan's (1961) scale**

All six studies were undertaken in non-English speaking countries and were forward-back translated for use in a cross-cultural context (Beaton et al 2000). In the studies which described how KOP was translated, most researchers described Brislin's (1970) model of using independent translators and subsequent independent group comparisons (cited in Cha et al 2007). Lawshe (1975) recommends the use of experts on panels (n= 4 to 20) to confirm face validity of translated scales. Four studies described this process (Yen et al 2009; Erdemir et al 2011; Kucukguclu et al 2011; Rejeh et al 2012). Yen et al (2009), Kucukguclu et al (2011), and Rejeh et al (2012) piloted their translated scales to test for validity with the target population, as recommended by Beaton et al (2000). Rejeh et al (2012) made unspecified modifications to their scale.

Gonzalez-Calvo et al (1997) suggest that cultural and semantic interpretations of translated scales can influence research participant's responses. Face validity may be affected if scales are translated verbatim from a different cultural background (Lawshe 1975; DeVon et al 2007). The studies by Lambrinou et al (2005), Kucukguclu et al (2011) and Matarese (2012) presented Kogan's (1961) original scale in their research without specifying

if a verbatim version was used in their study. Erdimer et al (2011) presented translated scale items as did Yen et al (2009) and Rejeh et al (2011) who both noted the scale items had been simplified from Kogan's original (1961) scale.

### **2.6.2 Administration of Kogan's (1961) scale**

All studies replicated Kogan's 7-point Likert scale, including the neutral value of 4 reserved for missing data (Kogan 1961). Modern statistical packages offer options to impute missing values into data (Brick & Kalton 1996; Tabachnick & Fidell 2007). Best practice in presenting findings from quantitative analysis suggest that the extent of missing data and how it was managed should be reported (Zygmunt & Smith 2014) but missing data was not discussed in any study.

### **2.6.3 Testing the psychometric properties of Kogan's (1961) scale**

All studies verified sampling adequacy of their data for factor analysis as recommended by Tabachnick & Fidell (2007). Table 2.2 describes the different factor reduction methods although three studies used the same approach but yielded different factor structures (Lambrinou et al 2005; Yen et al 2009; Erdemir et al 2011). Kogan's (1961) two-factor solution, "appreciation" and "prejudice" was extracted in four of the studies (Yen et al 2009; Erdemir et al 2011; Kucukguclu et al; 2011 Rejeh et al 2012).

How factors were extracted could have been affected by the values set for acceptable factor loadings (Bryman & Cramer 2008). Ferguson & Cox (1993) and Tabachnick & Fidell (2007) recommend factor loadings of  $\geq 0.4$  and Costello & Osborne (2005) recommend that items which cross-load over factors to a value of  $\geq 0.35$  should not be included in factor extraction. Only Lambrinou et al (2005) Yen et al (2009) and Rejeh et al (2012) applied factor



loadings at  $\geq 0.4$ , other studies accepted lower factor loadings. Rejeh et al (2012) extracted two factors but ignored the  $n=4$  items that cross-loaded. Erdemir et al 2011 set loadings at  $\geq 0.3$  for their translated KOP scale and at  $\geq 0.4$  for the retest after two weeks. All items loaded to two factors but on pooling items from different data collection times at the more robust  $\geq 0.4$ , thirty items cross-loaded, suggesting that this was not a true two-factor structure. Kucukguclu et al (2011) set loadings at the lower value of  $\geq 0.3$  and all items loaded to two factors with no cross-loadings. Had the value been increased to  $\geq 0.4$ , not all items would have loaded to the two factors.

Matarese et al (2012) found a three-factor solution, reduced to two after split testing which Matarese did not explain. Factor loadings were accepted at a low value of  $\geq 0.16$  so, according to Bryman & Cramer (2008) these items may not have contributed to the variance. Lambrinou et al (2005) extracted six factors with factor loadings set higher than usual at  $\geq 0.49$ . Only the Cronbach's alpha values were reported for OP- and OP+ which Lambrinou et al (2005) confirmed was similar to other research study findings including Kogan's own (1961) study. The six extracted factors were not reported for reliability (Bryman & Cramer 2008) and Lambrinou et al (2005, p1246) explained that they were extracted to "explain the factor content in a meaningful way" to represent differences in the Greek sample from other study populations.

**Table 2.2 Research studies which test the psychometric properties of Kogan's (1961) attitudes towards older people (KOP) scale in a nursing context**

Author	Lambrinou, E., Sourtzi, P., Kalokerinou, A., Lemonidou, C., 2005	Yen, C-H., Liao, W-C., Chen, Y-R., Kao, M_C., et al., 2009	Erdemir, F., Kav, S., Citak, E. A., Hanoglu, Z., et al., 2011	Kucukguclu, O., Mert, H., Akpinar, B., 2011	Rejeh, N., Heravi-Karimooi, M., Montazeri, A., Foroughan, M., et al., 2012	Matarese, M., Lommi, M., Pedone, C., Rosaria Alvaro, R., et al., 2012
Research aim	To investigate the psychometric properties – validity and reliability – of the Greek version of Kogan's (1961) Old People Scale	To assess the reliability and validity of a Chinese version of Kogan's (1961) Attitudes toward Older People among medical and nursing students	To assess the reliability and validity of a Turkish version of Kogan's (1961) Attitudes Toward Older People Scale among faculty of health sciences	To assess the reliability and validity of a Turkish version of Kogan's (1961) Attitudes Toward Older People Scale with nursing students	To assess the psychometric properties "validity" and "reliability" of the Iranian version of Kogan's (1961) Attitudes Toward Older People Scale	To test the validity and reliability of the Italian version of the Kogan's (1961) Attitude towards Older People scale.
Country of origin	<b>Greece</b>	<b>Taiwan</b>	<b>Turkey</b>	<b>Turkey</b>	<b>Iran</b>	<b>Italy</b>
Research method	Cross-sectional survey Content Validity – four panel Greek version of Kogan's (1961) attitudes towards older people scale. (Codings as Kogan - 6-point Likert scale with 4 for neutral) factor analysis of using a principal component analysis with varimax rotation t test for differences between Year 1 and 3	Cross-sectional survey Chinese version of Kogan's (1961) attitudes towards older people scale. (6-point Likert scale with a neutral value of 4 attributed to missing data)  Data collected twice (additional n=30 after the original survey but not identified if this was a repeat test or additional participants) Construct validity was assessed by factor analysis employing Principal Component Analysis. Varimax rotation	Cross-sectional survey Turkish version of Kogan's (1961) attitudes towards older people scale. (6-point Likert scale with a neutral value of 4 attributed to "rare event" of missing data)  Data collected twice, 4 weeks apart (additional n=402) for repeat testing  Factor analysis using principal component analysis. Loading to > 0.30. KMO and Bartlett's test Cronbach's coefficient alpha and item-to-total correlation. Stability using Pearson correlation coefficients (r)	Cross sectional survey Turkish version of Kogan's (1961) attitudes towards older people scale.  Cronbach's alpha and Pearson Correlation. Test– retest measurement used Pearson correlations and a dependent t-test with a two-week interval (n=68 students)  Construct validity was assessed by confirmatory factor analysis	Cross-sectional survey Persian of Kogan's (1961) attitudes towards older people scale. (6-point Likert scale with a neutral value of 4 attributed to missing data)  Factor analysis (type not specified) Data collected twice (additional n=70) for repeat testing using Pearson correlation coefficients (r)	Cross-sectional descriptive study Kogan's (1961) Attitude towards Older People scale. (6-point Likert scale with a neutral value of 4 attributed to missing data) Scale was subjected to: Content Validity Index principal factor analysis (PFA) with Promax rotation KMO and Bartlett's test Cronbach's coefficient alpha and item-to-total correlation.
Study population	Year 1 and Year 3 nursing students (n=390) who from two universities in Athens n=233 Year 1 students n=157 Year 3 students (83% female; 17% male)	Medical (n= 191) and nursing (n= 84) students from one "medical school" (female 49%; male 51%) No years detailed for nursing students	Students studying health sciences at one Turkish university (n= 594) Years 1 – 4 students. Nursing students comprised n=177 of the study population (Female 81% Male 19% no breakdown by Faculty)	Nursing students (n=273) from one school (no data relating to year of study) (17.7% male and 82.3% female)	Medical/surgical Registered Nurses (n=350) from five hospitals	Year 1-3 nursing students (n=1637) who volunteered to participate from two universities in Rome (one private) (69.2% female 27.8% male)
Translation methods	Forward/back (exact) translation Forward translation into Greek by first author	Forward/ back-translation, Panel evaluation, testing by bilingual students, and	Forward/ back-translation, Forward into Turkish by three bilingual nurses/medics working	Forward/ back-translation, Forward/back translation into Turkish by the authors and two bilingual translators.	Forward/ back-translation, Forward/back translation into Persian by two bilingual	Not identified

	Backwards translation into English by an independent translator No pilot	Validation by bilingual expert panel (area of expertise not identified) KOP Items simplified and shortened.	independently. Reviewed and amended by an expert Back translation from Turkish to English by two bilingual language experts and sent to Professor Nathan Kogan for confirmation of sameness in meaning. Face validity confirmed by (n=12) expert panel (specialties identified) Pilot tested (n=30)	Translated items compared to the original KOP and items amended under discussion.  Face validity confirmed by (n=7) expert panel (specialties identified)  Pilot tested (n=30) nursing students	language experts working independently Face validity confirmed by a 20-strong expert panel (specialties identified) Pilot tested (n=20 RNs)	
Findings	Cronbach's alpha coefficient was 0.73 for the OP - and 0.65 for the OP+ and 0.80 for the total scale. Six factors extracted explaining 41.5% variance Spearman's rank correlations between OP+ and OP- range from 0.38 to 0.64 in the four sub-samples year 3 students have more positive attitudes than Year 1 students	CVI was .92 Cronbach's alpha was 0.82 for the total scale, 0.83 for Prejudice (KOP -) and 0.81 for Appreciation (KOP +)  Two factors were extracted which explained 54.7% of the variance	CVI was 0.94 Apparently a two-factor solution (see comments) Cronbach's alpha at Time 1 total scale was 0.84; 0.79 for KOP - And 0.77 for KOP +items. Time 2, Scale alpha was 0.82 for KOP - and 0.81 for KOP + Test retest Pearson r was between 0.21 and 0.45.	No CVI value Two factors confirmed (lowest item loading 0.38)  test-retest score means of the KAOP scale items (r = 0.83, p < 0.001) and subscales (OP- 0.77 OP+ 0.3, p<0.001) No significant differences in the scale means, p < 0.05  Cronbach's alpha coefficient was 0.89 for the total scale and 0.82 for OP- and 0.85 for OP+	CVI 0.95 Two factor solution Explaining 58.76% of the variance. Cronbach's alpha was 0.83 for the total scale, 0.83 for "prejudice" (KOP -), and 0.86 for "appreciation" (KOP +). Test retest Pearson r was 0.44 and 0.85	CVI - 0.81 Three- factor solution explaining 91% variance but split testing suggested a two-factor solution explaining 78% of the variance Item 17P loaded to the negative scale (-0.33) Alpha value for KOP 0.76 rising to 0.86 removing 17P. KOP - alpha value 0.80 KOP + alpha value 0.66
Comments	Factor loadings $\geq 0.49$ higher than usual and if at $\geq 0.40$ many would cross-load. Three factors have only 2 items (which are paired statements) No Cronbach's alpha testing on the factors.	Factor loadings of $\geq 0.40$	"In this study, the negative and positive items were presented in random order based on Prof. Kogan's suggestion" (pp. e163) Presented as two sets of data (Factor 1 and 2) as a test retest. Most factor loadings appear to cross-load between the two factors.	No demographics discussed (6-point Likert scale with a neutral value of 4 attributed to missing data was implied but not specified)  Factor loading set at $\geq 0.30$ OP+ more reliable than OP-	All 34 items loaded and n=14 had very high loadings > 0.8 Item statements simplified but some still have double and triple content within a single item	Factor loading limits not identified and loadings accepted as low as 0.16. Item wording may affect the reliability of the scale Suggest KOP - scale should be used instead of the 34-item scale

#### **2.6.4 Reliability analysis of KOP**

All studies used Cronbach's Alpha as recommended by Ferguson & Cox (1993) and Tavakol & Dennick (2011), to assess internal reliability of the total scale and the extracted OP- and OP+ factors. The 34-item scale had acceptable Cronbach's alpha values of  $> 0.8$  (Tabachnick & Fidell 2007; Field 2009) in all studies except Matarese et al (2012) which had an alpha value of .76. Reliability of the OP- and OP+ scales supported Kogan's testing except for Kucukguclu et al (2011) who found a more reliable OP+ (alpha score 0.85). The OP- reliability scores all achieved .79 or higher, but OP+ did not demonstrate good reliability in the Greek and Italian studies with alpha scores of .65 and .66 respectively. Cronbach's alpha changes according to who is being sampled (Tavakol & Dennick 2011; Peter 2014) and the variations may reflect the different study populations.

All researchers asserted that their version of Kogan's original (1961) scale is suitable for use with similar study populations. However, the variations in their research methods prevent any generalisations of the results to UK-based students. Tabachnick & Fidell (2007) recommend that study populations should be representative of each other for findings to be generalisable. The different cultural values towards older people in other countries mean that the nursing student study populations used in the reviewed studies are not necessarily representative of UK based nursing students.

#### **2.7 Chapter conclusion**

This chapter appraised the development, psychometric properties and use in research of attitudinal measures towards older people and nursing older people in nursing student populations.

Findings from the general review show that research methods and designs were too different to draw conclusions about nursing students' attitudes towards older people and nursing older people. Translations of Kogan's (1961) scale were found to be reliable and valid in the country where the research was undertaken, but these findings may not be generalisable to nursing students in the UK.

No studies were found that compared Kogan's (1961) scale with a healthcare specific measure. At the time of this study, McLafferty's (2005) scale was the only healthcare contextual scale found which had a published psychometric evaluation and had been used in an independent study. Therefore, this study aims to inform the gap in this research by comparing the psychometric properties and sensitivity of Kogan's (1961) KOP scale with McLafferty's (2005) MANOP scale with a nursing student population.

## **Chapter 3 The study research method and design**

### **3.1 introduction**

The literature review in Chapter 2 found that many studies measured attitudes towards older people using Kogan's (1961) scale without retesting for reliability and validity in a healthcare context. The studies that have tested Kogan's (1961) scale found a translated scale reliable for their population, but findings may not be generalisable in the UK. McLafferty's (2005) scale (MANOP) was developed to measure attitudes towards nursing older people. Both measures require further testing to strengthen evidence of construct validity and reliability to determine the usefulness of either or both measures in healthcare studies.

This study aimed to test the psychometric properties of the KOP and MANOP scales and evaluate their construct, reliability and sensitivity with nursing students in a UK context.

This study was originally planned as the first part of a larger Doctorate thesis and the Participant Information Sheet (Appendix III) reflects this. The scale provided by Dr. McLafferty for this study was a 30-item scale which has not been referred to in any published literature.

This chapter outlines and explains the research method and study design. How the questionnaire was developed, recruitment of nursing students and the associated ethical considerations of the study are explained. The data collection and management strategies are described and justified. The chapter continues with an overview of how missing data was addressed and the approaches used to test the assumptions of the data before analysis. The chapter concludes with the data analysis procedures undertaken to answer the research questions below.

### **3.2 Study aims and research questions**

#### **3.2.1 The study aims**

The aims of this study were:

1. To explore the factor structures and psychometric properties of Kogan's (1961) Attitudes towards Older People (KOP) and McLafferty's (2005) 30-item Attitudes towards Nursing Older People (MANOP).
2. To determine whether either, or both scales are reliable and have sufficient sensitivity to detect any change in adult nursing students' attitudes towards older people over the first year of their nursing programme.

#### **3.2.2 The study research questions**

1. Does a healthcare specific attitude measurement scale (MANOP) have better reliability, construct and discriminant validity than a non-contextual tool (KOP) in measuring nursing students' attitudes towards older people?
2. Is an attitudinal questionnaire developed for a healthcare context (MANOP) more sensitive to any change in nursing students' attitudes towards older people than a non-contextual tool (KOP)?
3. Do nursing students' attitudes towards older people change over time?

The null hypotheses for the study were that there would be no significant differences between the validity or sensitivity of KOP and MANOP and no significant difference over time in nursing students' attitudes in either direction.

### **3.3 The study method**

This study used Principal Components Analysis to explore the individual factor structure and psychometric properties of KOP and MANOP. To evaluate the factor structures and reliability

and sensitivity of both scales, extracted factors from both scales were used separately to measure any attitudinal change in Year 1 nursing students at three time points over a single academic year.

### **3.3.1 Research design**

The research design used a within-subjects, longitudinal panel survey of non-experimental quantitative design (Oppenheim 2000; Blossfield et al 2009). A panel study was chosen to stabilise any influence of confounding or unobserved variables in the data (Blossfeld et al 2009). The survey method employed a self-completion, paper-based, questionnaire comprising all items ( $n = 64$ ) from KOP ( $n=34$ ) and MANOP ( $n=30$ ). The study used a convenience sample of Year 1 nursing students on the adult programme. Data were collected at three time points over their first academic year. The population sample, data collection and analysis are discussed in more detail further into this chapter.

### **3.3.2 Developing the survey questionnaire**

The paper-based questionnaire was developed using all KOP items ( $n=34$ ) (Kogan 1961) and all items ( $n=30$ ) from MANOP (McLafferty 2005; 2007). The Time 1 questionnaire also sought initial demographic data relating to the students (See Appendix IV). The Times 2 and 3 questionnaires had an item added to categorise clinical areas where students had their most recent placement (See Appendix V).

### **3.3.3 Managing potential measurement error**

The questionnaires were developed to optimise response rates and minimise sources of respondent bias and measurement error, which could influence the validity of the findings (Weisberg, 2005; Roberts 2007).



*i. questionnaire length*

All items from KOP and MANOP were combined and sequenced (see below) into a single n=64 item questionnaire. The choice to combine the scales balanced the risk of participant fatigue when answering a long questionnaire (McColl et al 2001; Malley et al 2007) against the risk of one scale not being completed if they were administered separately. Participant fatigue can cause non-response rates of  $\geq 1$  item (Dillman et al 1993; McColl et al 2001; Dillman 2007), but if the scales were administered separately, nursing students could judge one as being less personally salient and opt out of responding to it (Adams & Cox 2008).

*ii. Sequencing of scale items*

The KOP and MANOP items were alternated throughout the questionnaire because response error may be reduced as participants are less likely to anticipate their responses to the next question (Collins 2003; Fabrigar et al 2005). Although presenting scales in a different format from earlier research could affect previously established integrity and validity (Bowling 2005), McLafferty (2005) had made no claim relating to the 30-item scale. Furthermore, Kogan's (1961) psychometric testing was not based on a stand-alone measure with obviously paired items. Kogan interspersed his scale items with items from other attitudinal scales, "partially disguising the presence of logical opposites among the 'old people' statements" (Kogan 1961 page 45).

*iii. Structure and wording of the questionnaire items.*

The wording of the KOP items was unchanged although five items were altered from American English to UK English. Thirteen of Kogan's scale items contain more than one construct, increasing the risk of measurement error because of a lack of clarity about which construct to answer (Oppenheim 2000; Kline 2000; DeVellis 2003; Adams & Cox 2008). Simplifying these items would not answer the research questions and the processes required

to establish content validity were out with the remit of this study so they were unaltered. All 30 items of the MANOP scale, provided by McLafferty for this study were drawn from the original scale set in Scotland (McLafferty 2005; 2006; 2007) and left unchanged.

*iv. The Likert scale and Likert options*

A 6-point Likert scale was used in the survey. Each level of agreement on the Likert scale was attributed a value; Strongly agree (a value of 6); Agree (5); Slightly agree (4); Slightly disagree (3); Disagree (2); and Strongly disagree (1). Preston & Colman (2000) suggest that Likert scales with  $\leq 7$  responses are easy to use and analytic findings from data using at least 6-point scales are more robust than scales with four points (DeVellis 2003). Bryman & Cramer (2008) advocate a minimum of six points on a Likert scale for the data to be treated as interval (continuous) rather than categorical (ordinal). The magnitude of attitudinal change cannot be measured using ordinal data, only that change has taken place (DePoy & Gitlin 1998; Coolican 2009). Continuous data was required for the analyses to answer research questions 2 and 3 (Kline 2000; Bryman and Cramer 2008).

A neutral point in the Likert scale was eliminated to force a positive or negative response which could reduce the number of people opting for “no opinion” when they do hold an attitude (Krosnick 2002; Krosnick et al 2002; Nowlis et al 2002). McLafferty (2005) used a 5-point Likert scale in her original research, with a neutral point, but this study’s 6-point scale introduced a “slightly” agree or “slightly” disagree option. Stocke (2007) suggests this could reduce participants’ anxiety about expressing what they perceive as a socially undesirable opinion.

Kogan (1961) used a 7-point scale but the middle point (4) was not presented as a neutral option for participants. Instead Kogan attributed the value of 4 for missing data after the questionnaires were returned. Modern statistical packages provide alternative strategies to

manage missing data, making Kogan's (1961) "neutral" value of 4 for missing data redundant (Karahalious et al 2012) and therefore, to simplify the scoring process, in this study the Likert items were scored from 1 to 6, with data judged to be missing at random replaced using an ipsative mean (Imai et al 2014). This approach is discussed more fully under section 3.8.3, Data screening and cleaning. Burns and Grove (1997) suggest that using a six-point scale would offer participants the same strength and intensity of Likert choices in this study as in Kogan's (1961) research. Total Likert scores were altered in this study, ranging from 34 to 204 in this study compared to Kogan's (1961) 34 to 238. Higher total scores indicated more positive attitudes in both studies.

The scores for negatively worded items were reversed to obtain an overall summative attitudinal measure for each nursing student (Field 2009). If all items were included in the analysis after screening, the total of all items from the KOP scale ranged from the most positive score 204 to the most negative score of 34. MANOP's scale ranged from 180 to 30.

### **3.3.4 Questionnaire presentation**

A definition of older people, including age (65 years and older) was provided at the start of each questionnaire. Demographic data to capture cohort, age, gender, campus of study and prior experience of paid caring for older people were asked at the end of the baseline questionnaire questions (see Appendix IV). Ethnicity was not sought because all except two participants were white British which could compromise anonymity (Clark 2006; Adibelli and Kilic 2013). The Time 2 and Time 3 questionnaires excluded demographic variables, but included a variable to identify the students' most recent clinical placement type.

The questionnaire was presented on pastel coloured paper with size 12 san serif font to increase reading ease for people with dyslexia (British Dyslexia Association (BDA) 2017). The

minimum possible number of pages were used to reduce participant fatigue (McColl et al 2001; Clark 2006).

### **3.4 Research method: factor analysis and repeated measures analysis**

Factor analytic techniques were applied to reduce the number of variables in each scale and to establish structure in the relationships between scale items (Field 2009). Principal Components Analysis (PCA) was used to answer research question 1. PCA assumes that, within a set of items comprising a measurement scale - such as KOP and MANOP - there will be more than one latent variable and these can be grouped into factors (Klein 2000).

Cook & Beckman (2006) and Field (2009) recommend that extracted factors from KOP and MANOP should be used separately in repeated measures analysis to compare their reliability and sensitivity in measuring nursing students' attitudes towards older people and attitudes towards nursing older people. The analytic methods for this strategy are outlined later in this chapter.

### **3.5 The population sample**

The sampling strategy used non-probability, convenience sampling (Field 2009) of Year 1 adult nursing students from three consecutive nursing cohorts. The students were affiliated to a single School of Nursing & Midwifery, sited on two campuses within two regions in Scotland. The period of data collection ran for 25 months: from the start of academic year 1 with cohort 1 to start of academic year 2 with cohort 3 (See Table 3.1 below).

### 3.5.1 Sample size

Three consecutive cohorts of nursing students provided a potential sample of n= 530 male and female nursing students aged from 18 to 50 years. This population was large enough for reliable analysis (Tabachnick & Fidell 2007) with a survey response rate of just below 60%, which is possible in health research (Cook et al 2009).

**Table 3.1 Timeline for data collection at Time 1, Time 2 and Time 3**

Month/year	Sept 2008	Jan 2009	Apr 2009	July 2009	Sept 2009	Jan 2010	Apr 2010	Sept 2010
Month Number	1	5	8	11	13	17	20	25
Cohort	Sept 2008	Jan 2009	Sept 2008	Jan 2009	Sept 2008	Jan 2009	Sept 2009	Sept 2009
Data collection time point	Time 1	Time 1	Time 2	Time 2	Time 3	Time 3	Time 2	Time 3
Cohort					Sept 2009			
Data collection time point					Time 1			

### 3.5.2 Study population inclusion/exclusion criteria

First year adult nursing students, aged 18 years and over at the first data collection point, were eligible to participate. The University Student Information System (SITS) identified nursing students by age, programme and whether they were returning from a break in their studies. Nursing students under 18 years were excluded because of the ethical difficulties of including minors in research (Medical Research Council 2007; General Medical Council 2013). Nursing students who had returned to year 1 after temporary withdrawal from the programme were also excluded because they may not be able to provide a true baseline measure.

### **3.6 Data collection methods**

Data were collected for each cohort at three distinct points during year 1 of the undergraduate programme (See Table 3.1). Students undertook two separate periods of twelve weeks of theory followed by twelve weeks of clinical practice over Year 1. To establish a baseline measurement of attitudes towards older people and nursing older people, the Time 1 questionnaire was administered, see section 3.7.2, in week five of the first theory period, before any information relating to older people was provided as general preparation for first placement. Times 2 and 3 data collection points fell in the first week of theory when students returned from each period of clinical practice. No reminders were sent to non-respondents because the students received the questionnaires in person through a classroom situation described in section 3.7.2 (Bowling 2005).

During the period of data collection, Year 1 of the nursing programme was required to conform to the Nursing & Midwifery Council (2006) “Common Foundation Programme” and there was no opportunity to include a control group to increase research rigour (Oppenheim 1992; Polit & Hungler 1997).

#### **3.6.2 Managing attrition**

To manage contracting sample sizes through attrition in longitudinal research the study accepted the return of the baseline questionnaire and at least one of the Time 2 and Time 3 questionnaires as advised by Oppenheim (1992).

### **3.7 Ethics and consent**

Permission was granted to carry out the study from Dundee University Research Ethics Committee, UREC Number 8100, (see Appendix VI) and the School of Nursing & Midwifery through a governance panel to ensure that nursing students are not overburdened by participation in research studies.

#### **3.7.1. Confidentiality within the study**

Each student was attributed an individual code to track their attitude measurements over time (Parahoo 2006). The coding method was known only to the researcher and supervisors, and the student remained anonymous throughout the study.

#### **3.7.2 Recruitment to the study**

Verbal information about the context and purpose of the study was given to each student cohort in a pre-timetabled lecture before week 5 of the first theory block. Students were informed that a Participant Information Sheet (PIS) and all questionnaires would be delivered individually in class room settings. Students were allocated to a Learning Team and supported by a lecturer acting as a Learning Team Facilitator (LTF) for the duration of the programme. Timetabled Learning Team meetings over year 1 provided the opportunity to administer the questionnaires to each student at three data collection times.

#### **3.7.3 Participant consent**

Consent was voluntary with no benefit for nursing students to participate (McColl et al 2001). A Participant Information Sheet (PIS) to read before survey completion was provided to participants at the same time as the first baseline questionnaire (Coolican 2009). Students had written assurance of anonymity and the right to withdraw from the study without

detriment to their progression through their nursing programme. The PIS followed good practice guidelines (Polgar & Thomas 1995) and had an individually coded tear off consent slip. Students were asked to sign, date and return the slip if they gave permission to participate in the study and to use any returned data.

The PIS and all coded questionnaires were addressed to individual students in sealed envelopes. The Learning Team Facilitators agreed to distribute the questionnaires, although not all allocated class time for completion. To assure students of anonymity of their data, consent slips and questionnaires were returned to the researcher in separate envelopes (Parahoo 1997). The Time 2 and Time 3 questionnaires were distributed using the same method to all students who had returned the baseline measure and a consent slip.

#### **3.7.4 Research governance**

All data were managed in compliance with research governance requirements (University of Dundee 2017). Paper and portable electronic data were stored in a locked cabinet in a personal locked office for the duration of the study (Great Britain Data Protection Act 1998). Electronic data was managed on password protected University desk top computers (University of Dundee 2017).

### **3.8 Preparation and management of data before analysis**

Before analysis, the data were screened to verify that the data collected and inputted was suitable for analysis (Tabachnick & Fidell 2007).

#### **3.8.1 Inputting data**

Data collected from each time point (n=3) and each cohort (n=3) were entered onto databases (n = 9) in SPSS v21 (International Business Machines (IBM) Corporation 2012). To minimise



inputting errors, each data base was managed individually before merging them for analysis. A written record was kept of the data management processes used with the data sets (Coolican 2009).

### **3.8.2 Coding and classifying variables**

All variables were labelled with a unique name (Pallant 2001). The demographic independent variables were treated as categorical or nominal (Pallant 2001). The dependent variables from each KOP and MANOP item were treated as continuous to allow analytic testing for variance, and t-testing (Maltby et al 2007; Tabachnick & Fidell 2007). Before analysis, the data were submitted to exploratory data analysis procedures to identify entry errors and missing data.

### **3.8.3 Data cleaning and screening**

Ten percent of all data inputted was manually checked from (n=25) randomly selected questionnaires (Coolican 2009; Field 2009). Missing data in the returned questionnaires were inputted with a value of 9 to facilitate identification in SPSS (Tabachnick & Fidell 2007; Field 2009). Descriptive statistics were used to identify data entry errors and missing data (Tabachnick & Fidell 2007). Case-wise frequencies were explored to identify the number of items answered and any missing responses (Pallant 2001). Scale totals were scrutinised for outliers above the maximum score possible for KOP (n=204) and (MANOP) (n=180). A case processing summary for each participant was scrutinised for missing variables (Pallant 2004). Cases were not excluded pair wise because data may not have been missing at random (Jelicic et al 2009).

Any returned questionnaire with  $\geq 10\%$  missing responses to items from either the KOP or the MANOP scale was omitted from analysis (Field 2009). If this occurred at baseline, the participant was not included in further data collection (Coolican 2009). Individual items from

KOP and MANOP with  $\geq 5\%$  missing from all participants' responses were treated as though the data was not missing at random and were removed before analysis (Tabachnick & Fidell 2007). The ipsative imputation method recommended by (Huisman (2000) and Imai et al (2014) was used to replace data judged to be missing at random. Therefore, any missing data within KOP or MANOP was replaced with the ipsative mean of all their other item responses from the same scale (Downey & King 1998).

After screening the data, assumptions of the data were checked for suitability for factor analysis.

### **3.8.4 Testing assumptions of the data**

Tabachnick & Fidell's (2007) recommendations were followed to test if the assumptions of the data had been met or violated.

#### *i. Skewness and Kurtosis*

The Skewness and Kurtosis of each variable were assessed for how symmetrically and peaked the data was distributed around the mean. Each skewness and kurtosis value was divided by its standard error to provide a z score which should ideally be zero.

Skewed data was reversed and transformed to try to force a more normal distribution. For moderately skewed data, square root transformation was applied. Logarithmic transformation was applied to all data to try to correct a strongly positively skew. Ferguson & Cox (1993) also recommend a cut off of  $\pm 3.3$  for the z-score and variables producing values out with these limits were considered for removal. Decisions relating to item removal are discussed in Chapter 4.

#### *ii. Visual examination of the correlation matrix*

The correlation matrix was scrutinized to check that correlations were sufficient to justify applying factor analysis. At least half of the correlations should be  $\geq 0.30$  (Field 2009). Any variables that were not strongly correlated with any other variable were observed closely during the factor reduction method or considered for removal.

*iii. Bartlett's test for sphericity*

A Bartlett's test value of  $< 0.05$  was accepted to determine whether each variable correlated perfectly with itself ( $r = 1$ ) but was uncorrelated with others ( $r = 0$ )

*iv. Kaiser-Meyer-Olkin (KMO) test for sampling adequacy*

A minimum Kaiser-Meyer-Olkin (KMO) value of 0.5 was used as a measure of sampling adequacy for factor analysis. A lower value would suggest that there are too many variables in common with each other to separate into factors.

### **3.9 Data analysis: The Factor Analysis process**

To answer research question 1, Exploratory Factor Analysis (EFA) was undertaken on the separate MANOP and KOP scales from the Time 1 (baseline) data collection. KOP had not undergone verification of the factor structure with nursing students in the UK and the MANOP factor structure was not confirmed with nursing students as the sole population sample, hence Cook & Beckman (2006) recommend using Exploratory Factor Analysis.

#### **3.9.1 Criteria for factor extraction**

An unrotated solution was asked for at the first factor reduction process, with no a priori determination of factor numbers to be extracted (Osborne et al 2008; Osborne 2015).

i. *Kaiser's criterion*

A Kaiser's (1960) eigenvalue of  $\geq 1.0$  was accepted (Field 2009).

ii. *The Scree test (Cattell (1966)*

Scree plots were generated throughout and used to identify the variance explained by each factor (Tabachnick & Fidell 2007; Bryman & Cramer 2008). The point where factors represent most of the variance appears as an "elbow" and factors below the elbow were rejected as "scree". The factors above, but not inclusive of, the elbow were retained (Cattell 1966 cited in Bryman & Cramer 2008).

iii. *Communalities*

The communality values were scrutinized for the ideal value of  $> 0.6$ . The communality value when all components are retained is equal to 1.0 but because all variables are not always retained, the communalities would be  $< 1.0$  (Field 2009).

### **3.9.2 The factor extraction process**

To extract stable factors from the scale which could be interpreted, at least three items loading to  $\geq 0.4$  were required per factor (Ferguson & Cox 1993; Cook & Beckman 2006). Any items which cross-loaded onto more than one factor at  $\geq 0.35$ , could be related to more than one factor and were not included in the factor solution (Ferguson & Cox 1993; Tabachnick & Fidell 2007).

The initial factor analysis solution was scrutinised to determine if factor loadings explained at least 50% of the variance (Tabachnick & Fidell 2007). If not, the process would be repeated asking for a specified number of factors to be extracted, based on the eigenvalues and/or the scree plot (Cattell 1965: Ferguson & Cox 1993).

### **3.9.3 Factor rotation to extract factors**

Varimax rotation was used to keep the extracted factors uncorrelated and improve interpretation of the factor solution (Tabachnick & Fidell 2007; Field 2009).

### **3.9.4 Interpreting the extracted factor meanings**

Using subjective interpretation, the extracted factors were labelled according to their collective meaning (Costello & Osborn 2007; Coolican 2009).

### **3.9.5 Testing for factor stability at Time 2 and Time 3**

The PCA process was repeated using orthogonal rotation on the Time 2 and Time 3 data to check stability of the extracted factors (Field 2009). Items which did not load to  $\geq .4$  were dropped and the process repeated until all items loaded and were stable between time points. Cattell and Baggaley's (1960) Salient Similarity Index (SSI) was used where possible to compare patterns of loadings on each data set (cited in Cattell 1965).

### **3.9.6 Testing the reliability of extracted factors**

Factors extracted from KOP and MANOP were tested for reliability (Bryman & Cramer 2008) using the reliability statistic, Cronbach's alpha, which assumes all items are equivalent (Kline 2000; Coolican 2009). An alpha value of  $\geq 0.7$  was satisfactory because alpha values can be lower than 0.8 if the factor has  $\leq$  six items ( DeVellis 2003).

Any factors extracted from KOP and MANOP which demonstrated internal reliability and could be interpreted, were used in the second part of the analysis of the data to answer research questions 2 and 3.

### **3.10 Repeated measures analysis using the extracted factors from KOP and MANOP**

To answer research questions 2 and 3 (below), data were subjected to a within group, repeated measures t-test (Pallant 2002).

2. Is an attitudinal questionnaire developed for a healthcare context (MANOP) more sensitive to any change in nursing students' attitudes towards older people than a non-contextual tool (KOP)?
3. Do nursing students' attitudes towards older people change over time?

#### **3.10.1 Testing assumptions of the data**

The data already met the first two assumptions for repeated measures testing (Pallant 2001).

The 6-point Likert scale meant that that data could be treated as continuous (McCallum et al 1999; Field 2009) and groups were related because the same participants were used for each repeated measure (Maltby et al 2007).

##### *i. Outliers in the data*

The data were tested for any cases presenting as outliers from the rest of the cases. Box plots with upper and lower tails of the plots were scrutinised (Field 2009). Decisions about what analysis would be used were based on whether assumption of normal distribution was violated.

##### *ii. Normal distribution of the data*

Data were tested using the Shapiro-Wilks test at  $p < 0.05$ , to assess for the assumption of normal distribution (Ghasemi & Zahediasl 2012). The distribution of the differences in the dependent variable between the two related groups should be approximately normally distributed, although t-testing is robust to violations of normality (Maltby et al 2007). The

non-parametric analysis alternative to the t-test was the Wilcoxon signed-rank test and this was considered as part of the analytic process (Hollander & Wolfe 1999).

### **3.10.2 Repeated testing between Time 1, Time 2 and Time 3**

Each factor extracted from KOP and MANOP was used separately to detect any significant attitude change in the nursing students using paired t-testing. Time 1 was tested against Time 2 and Time 3. Time 2 was tested against Time 3. The paired test described the subjects' attitudinal mean, and the standard deviation (sd) of the mean (Pallant 2001). The findings were scrutinised for significance of the 2-tailed test at  $p < 0.05$  and whether the null hypothesis that there would be no significant difference between nursing students' attitudes between time points could be retained or rejected (Maltby et al 2007). The effect size of any significant change was calculated and the findings were considered to answer the research questions.

### **3.11 Chapter Conclusion**

This chapter has outlined the development of the research study, the data management and the analytic procedures used to answer the research questions. Chapter 4 presents the findings from undertaking the study.

## **Chapter 4 Results**

### **4.1 Introduction**

This chapter presents the findings from the statistical analysis based on the research design described in Chapter 3. Demographic variables of the study respondents and non-respondents are described. The management of data is discussed and results are reported from the factor reduction process on Kogan's (1961) Attitudes towards Older People (KOP) and McLafferty's (2005; 2007) Attitudes towards Nursing Older People (MANOP). To answer the research questions below, an analytic assessment of the reliability and construct validity of the extracted factors is presented and the results of repeated measures analysis using the extracted factors to measure change in nursing students' attitudes

#### **4.1.1 Research questions**

1. Does a healthcare specific attitude measurement scale (MANOP) have better reliability, construct and discriminant validity than a non-contextual tool (KOP) in measuring nursing students' attitudes towards older people?
2. Is an attitudinal questionnaire developed for a healthcare context (MANOP) more sensitive to any change in nursing students' attitudes towards older people than a non-contextual tool (KOP)?
3. Do nursing students' attitudes towards older people change over time?

### **4.2 Demographic data of the population sample**

Three cohorts of adult nursing students provided a potential convenience sample of N = 530. Table 4.1, below, shows the demographic information of the student population used to collect the data.



**Table 4.1 Demographic information of the convenience sample of participants (N=530)**

<u>Category</u>	September 2008 cohort (n=161)	January 2009 cohort (n=136)	September 2009 cohort (n=233)	<u>Total</u>
Campus				
Main campus	102 (63.4%)	78 (57.4%)	155 (66.3%)	335 (63.2%)
Satellite campus	59 (36.6%)	58 (42.6%)	78 (33.7%)	195 (36.8%)
Gender				
Male	14 (8.7%)	19 (14%)	22 (9.4%)	55 (10.3%)
Female	147 (91.3%)	117 (86%)	211 (90.6%)	475 (89.7%)
Age				
18-29	116 (72%)	94 (69.1%)	184 (79%)	394 (74.3%)
30-44	40 (24.9%)	33 (24.3%)	39 (16.7%)	112 (21.1%)
45-59	5 (3.1%)	9 (6.6. %)	10 (4.3%)	24 (4.6%)
				530 (100%)

#### 4.2.1 Demographic data of respondents and non-respondents

Of the N = 530 students in the sample population, n= 268, a response rate of 50.6%, returned a baseline questionnaire and signed consent. Cross-tabulation of the independent variables explored the frequencies of respondents and non-respondents from all cohorts at all time points. Findings are presented in Table 4.2 below. Seven participants returned  $\geq 10\%$  missing data, and were excluded from further analysis, leaving n = 261 for data collection at Times 2 and 3. The process is discussed further in section 4.3.1.

#### 4.2.2 Tests for association between variables and questionnaire return

Time 1 data were analysed to determine any significant associations between the demographic variables and nursing students' participation at the beginning of the study. Chi-squared tests (2 x 2) identified any associations between the campus attended and return of the baseline questionnaire. Assumptions were met that variables were categorical or nominal and that the data fit the model by having all cell counts > 5 (Field 2009).

**Table 4.2 Demographic data of respondents and non-respondents across three data collection points**

	<u>Categories</u>	<u>Returned questionnaire</u>	<u>Non-return questionnaire</u>	<u>Total</u>
<b>Time1</b>	(N=530)	268	262	530
Cohort				
	September 2008	79 (29.5%)	81 (31.0%)	160 (30.2)
	January 2009	81 (30.2%)	56 (21.4%)	137 (25.8%)
	September 2009	108 (40.3 %)	125 (47.6%)	233 (43.9%)
Campus				
	Main campus	201 (75.0%)	135 (51.5%)	336 (63.4)
	Satellite campus	67 (25.0%)	127 (48.5%)	194 (36.6)
Gender				
	Female	235 (87.7%)	241 (92.0%)	476 (89.8%)
	Male	33 (12.3%)	21 (8.0%)	54 (10.2%)
Age **				
	18-29	186 (69.4%)	205 (78.2%)	391 (73.7%)
	30-44	66 (24.6%)	48 (18.3%)	114 (21.5%)
	45-59	15 (5.6%)	9 (3.5%)	24 (4.5%)
<b>Time 2</b>	(n=261)	238	23	261
Cohort				
	September 2008	65 (27.3 %)	10 (43.4%)	75 (28.8%)
	January 2009	72 (30.3%)	8 (34.8%)	80 (30.8%)
	September 2009	101 (42.4%)	5 (21.8%)	106 (40.4%)
Campus				
	Main campus	174 (73.1%)	19 (82.6%)	193 (73.9%)
	Satellite Campus	64 (26.9%)	4 (17.4%)	68 (26.1%)
Gender				
	Female	215 (90.3%)	18 (78.3%)	233 (89.2%)
	Male	23 (9.7%)	5 (21.7%)	28 (10.8%)
Age **				
	18-29 years	168 (70.6%)	14 (60.9%)	182 (69.7%)
	30-44 years	54 (22.7%)	9 (39.1%)	63 (24.1%)
	45-59 years	15 (6.3%)	0 (0%)	15 (5.7%)
Time 2 placement				
	NHS Acute	86 (36.1%)	12 (52.2%)	98 (37.5%)
	NHS Specialist	119 50.0%)	8 (34.8%)	127 (48.7%)
	Non-NHS Specialist	33 (13.9%)	3 (13.0%)	36 (13.8%)
<b>Time 3</b>	(n=261)	208	53	261
Cohort				
	September 2008	43 (20.7%)	32 (60.4%)	75 (28.7%)
	January 2009	68 (32.7%)	12 (22.6%)	80 (30.7%)
	September 2009	97 (46.6%)	9(17.0%)	106 (40.3%)
Campus				
	Main campus	159 (76.4%)	34 (64.2%)	193 (73.9%)
	Satellite campus	49 (23.6%)	19 (35.8%)	68 (26.1%)
Gender				
	Female	184 (88.5%)	49 (92.5%)	233 (89.2%)
	Male	24 (11.5%)	4 (7.5%)	28 (10.8%)
Age **				
	18-29 years	151 (72.6%)	31(58.5%)	182 (69.7%)
	30-44 years	43 (20.7%)	20 (37.7%)	63 (24.1%)
	45-59 years	13 (6.2%))	2 (3.8%)	15 (5.7%)
Time 3 placement				
	NHS Acute	87 (41.8%)	26 (49.1%)	113 (43.3%)
	NHS Specialist	65 (31.3%)	17 (32.1%)	82 (31.4%)
	Non-NHS Specialist	56 (26.9%)	10 (18.8%)	66 (25.3%)

\*\* N=1 missing data for age

Nursing students from the main campus were more likely to return a completed baseline questionnaire than those from the satellite campus. There was a significant association between campus and questionnaire return  $\chi^2(1) = 26.56, p < .005$ , The Phi coefficient, the measure of association between the variables in a 2 x 2 table (Field 2009), demonstrates a weak positive association  $\phi = .22, p < .005$ .

Chi-squared tests (2 x 2) were also carried out between gender and questionnaire return. There was no statistically significant association  $\chi^2(1) = 1.86, p = .17$

A chi-square test (2x3) of independence was conducted between to test for associations between age and questionnaire return. All expected cell frequencies were  $> 5$ . There was no statistically significant association between age and return of the baseline questionnaire,  $\chi^2(2) = 5.36, p = .07$ .

Nursing students from the January cohort were more likely to return the baseline questionnaire. A chi-square test (2x3) of independence was conducted between cohort and questionnaire return. All expected cell frequencies were  $>5$ . There was a statistically significant association between cohort and questionnaire return,  $\chi^2(2) = 6.76, p < 0.05$ . The association was weakly positive with a Phi coefficient of  $\phi = .19 p < .005$ . Overall, nursing students from the January cohort were statistically more likely to return the Time 1 questionnaire than the September cohorts, as were students based at the main campus.

The number of responses at Time 2 fell to  $n = 238$ , a 91.2% return rate from the  $n = 261$  participants who had returned completed Time 1 questionnaires. The return rate at Time 3 was  $n = 208$ , a 79.7% return rate from  $n=261$  participants. The response rate at all three data collection times met Ferguson & Cox's (1993) recommended number of participants to item

(N:p) ratio for factor analysis. The questionnaire return rate yielded at least 5 participants:1 variable because the KOP (n=34) and MANOP (n=30) items were analysed separately.

The collected data were then screened and cleaned to find data entry errors and missing data. Findings and strategies to manage missing data are discussed below.

### **4.3 Cleaning and Screening data**

A randomly selected 10% (n=25) of returned questionnaires from each data collection time were visually checked against the database entries and no inputting errors were found.

Descriptive statistics used to check categorical variables for missing data and extreme cases identified no outliers (Maltby et al 2007; Field 2009). The total means for each dependent variable produced no value above the maximum score possible for KOP (n=204) and (MANOP) (n=180).

#### **4.3.1 Identifying and managing missing data**

Frequencies of item responses were examined to judge whether data was missing at random or by intention. Seven cases were found with >10% missing data: six nursing students returned questionnaires with  $\geq 10\%$  missing from MANOP and one with  $\geq 10\%$  missing from the KOP scale. These cases were removed leaving  $n = 261$  for the baseline data analysis. For an overview of descriptive statistics please see Appendix VII for KOP and Appendix VIII for MANOP).

All items from KOP returned under the 5% margin for missing data (Tabachnick and Fidell 2007) and were retained. Responses to MANOP item 11, *“older people are cantankerous”*, were missing from 8.6% of returned questionnaires (n= 22) and were judged not to be missing

at random (Graham 2009). Item 11 was removed from further analysis leaving n=29 items in the MANOP scale. Randomly missing data under the 5% margin of both scales were replaced using the ipsative imputation method (Imai et al 2014). The inputted data were then assessed for suitability for factor analysis.

#### **4.4 Assessing assumptions of the data**

Scrutiny of the histogram for each item confirmed that data were not normally distributed. Skewness and kurtosis values were divided by their individual standard error to produce a z-score value for each item (Tabachnick & Fidell 2007). All items from the three collection time points are presented as z scores in Appendix VI. Only six items were within the  $z \geq \pm 3.30$  limits for inclusion in analysis. Data with a positive skew and unequal variances underwent Log transformation ( $\log(X_1)$ ) (Tabachnick & Fidell 2007) which did not normalise the distribution of any item. Undertaking Square Root transformation ( $\sqrt{X_1}$ ) on a reverse scored data set to address the positively skewed data with unequal variances (Field 2009) did not normalise the data. The untransformed data was retained because there was an option to use non-parametric testing to answer research questions 2 and 3. (Ferguson & Cox 1993)

The Kolmogorov-Smirnov (K-S) test and the Shapiro-Wilk test were conducted as an additional test for normality. All tests were significant at  $p < 0.005$ , and the null hypothesis that data were normally distributed was rejected. Field (2009) suggests that these tests could be significant with only a slight deviation from a normal distribution in large study populations.

Item response ratios were examined for 80/20 splits in responses to items (see Appendix IX). MANOP item 21, *"Patience is important no matter where you nurse"* had an 85.4/14.6 split between the "strongly agree" response and the five other options. Under these

conditions, Ferguson & Cox (1993) recommend removal of the item and item 21 was removed from further analysis, leaving 28 MANOP scale items.

The screening and cleaning process retained 28 of the original 30 MANOP items and all 34 items from KOP. Time 1, with the largest number of respondents, was used as the index data set for the first factor reduction process (Ferguson & Cox 1993). A series of iterations of exploratory factor analysis were undertaken on Kogan's (1961) scale items using the process outlined in Chapter 3. Factors extracted were tested for stability on the data sets from all time points. Items which did not load, or cross-loaded at  $\geq .35$  between components, were dropped and the process was repeated until factors extracted were stable at all time points and internal reliability was demonstrated. The process and findings are presented in Section 4.5.

#### **4.5 Exploratory factor analysis of Kogan's attitudes towards older people scale (KOP)**

An Exploratory Principal Components Analysis was carried out on the 34 KOP items. An unrotated factor solution with no a priori factor structure was requested (Ferguson & Cox 1993; Yong & Pearce 2013). To prevent over estimation of factors, cases were excluded list wise (Yong & Pearce 2013). Eigenvalues of greater than 1.0 after 25 iterations for convergence were extracted (Tabachnick & Fidell 2009).

##### **4.5.1 Measures of sampling adequacy at Time 1**

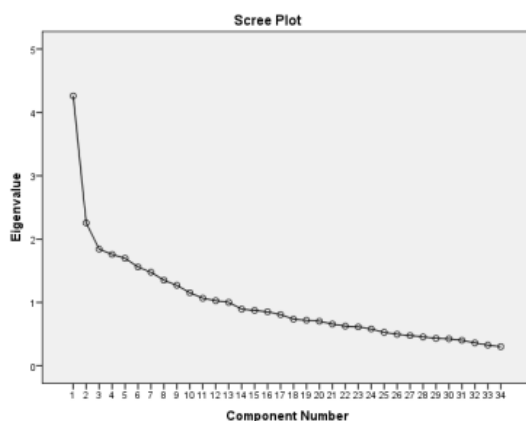
The Kaiser-Mayer- Olken (KMO) was acceptable at .67 and Bartlett's test for sphericity was significant at .000, indicating that the data was suitable for factor analysis. Correlations in the

matrix were low (see Appendix X), ( $n=8$ ) items correlated at  $r \geq 0.3$ , suggesting that some items may load singly onto their own factor (Field 2009).  $N = 32$  communalities from KOP showed values of  $\geq 0.6$ .

#### 4.5.2 The initial exploratory factor reduction method, 34-item KOP scale at Time 1 ( $n = 261$ )

An exploratory unrotated principal components analysis (PCA) was run on the 34-item KOP scale ( $n=261$  participants)

**Figure 4.1 Scree plot for initial factor reduction method (KOP) at Time 1**



The Scree plot (Figure 4.1) although not exact, strongly suggests a two-factor structure.

The PCA produced a thirteen-factor solution (see Table 4.3) explaining 63.9% variance. Component 1 was the only component which had  $n=8$  factor loadings which did not cross-load onto other Components at  $\geq .35$ . Components 4 and 5 each had only two items which did not cross-load. Components 2, 3, 6, 7 and 8 each had a single item loading. Components 9 to 13 had no items loading at  $\geq .4$  which did not cross-load to others. The findings confirmed the low values on the correlation matrix. The process was repeated based on the scree plot asking for a two-factor structure.

**Table 4.3 Factor loadings from an unrotated principal components analysis for the 34-item KOP scale at Time 1 (n=261)**

Component matrix														
Item		1	2	3	4	5	6	7	8	9	10	11	12	13
1	It would probably be better if most old people lived in residential units with people their own age	.247	.331	.193	-.124	<b>.473</b>	-.058	-.291	-.023	.244	.105	.162	.001	.082
4	It would probably be better if most older people lived in residential units with younger people.	.146	-.056	.026	-.094	<b>.422</b>	-.108	-.037	<b>.528</b>	.169	.250	.279	-.105	.146
6	There is something different about most old people; it's hard to find out what makes them tick	.299	.187	-.156	.343	-.168	.286	-.285	.211	.062	-.159	.294	-.049	.099
8	Most old people are really no different from anybody else; they're as easy to understand as younger people	-.236	-.158	<b>.453</b>	.030	.383	-.903	.291	-.084	.113	-.192	.204	.316	.230
10	Most old people get set in their ways and are unable to change.	.251	<b>.425</b>	-.389	.108	.002	.046	-.249	.071	.162	.032	.131	.314	.088
12	Most old people are capable of new adjustments when the situation demands it.	-.269	.078	.274	-.007	.169	<b>.402</b>	.258	-.109	-.291	.292	.144	-.191	-.188
14	Most old people would prefer to quit work as soon as pensions or their children can support them.	<b>.444</b>	.130	.312	.249	-.030	-.287	-.016	.246	.053	.089	-.094	-.113	-.160
16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.	-.346	.299	-.123	-.148	-.019	-.016	-.055	-.328	.132	.235	.148	.239	-.240
18	Most old people tend to let their homes become shabby and unattractive.	<b>.456</b>	.106	-.039	-.142	.215	.130	.056	.118	.168	-.023	-.317	-.122	.182



20	Most old people can generally be counted on to maintain a clean, attractive home	-.333	.073	.353	.168	<b>-.401</b>	.291	.012	.149	.063	.244	.140	.014	.020
22	It is foolish to claim that wisdom comes with age	.148	-.171	.064	<b>.708</b>	.145	.171	-.135	-.034	.038	.118	-.107	.065	-.160
24	People grow wiser with the coming of old age	-.081	.379	-.054	<b>-.672</b>	-.189	-.120	.031	-.001	-.008	.052	.016	-.061	.033
26	Old people have too much power in business and politics.	<b>.446</b>	-.097	.135	-.314	-.123	.083	.261	-.168	.222	.116	.329	.088	.060
28	Old people should have power in business and politics.	-.270	.177	-.049	-.091	<b>.407</b>	.198	-.140	.098	<b>-.440</b>	.299	-.229	-.101	.218
30	Most old people make one feel ill at ease	.293	.187	.126	-.286	.154	.288	-.195	-.093	.257	-.334	-.085	-.045	-.152
32	Most old people are very relaxing to be with	-.186	.331	<b>.452</b>	-.034	-.133	.152	-.011	-.062	<b>-.410</b>	-.317	.145	.107	.152
34	Most old people bore others by their insistence on talking about "the good old days".	<b>.445</b>	-.124	-.050	.035	-.148	-.032	.386	.274	-.024	.095	.341	.045	-.217
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	<b>-.466</b>	.386	-.031	.278	.014	-.161	.216	-.130	.175	-.050	-.082	.176	.189
38	Most old people spend too much time prying into the affairs of others and giving unsought advice.	<b>.488</b>	.102	-.052	-.024	.073	.092	<b>.413</b>	-.016	-.041	-.196	-.143	.085	-.296
39	One seldom hears old people complaining about the behaviour of the younger generation	-.083	.176	-.247	.076	.389	.332	.163	-.196	.245	-.175	.098	-.281	-.241
41	Most old people tend to keep to themselves and give advice only when asked.	-.041	<b>.462</b>	<b>.455</b>	.107	-.010	.288	.297	-.055	-.033	.177	-.037	-.106	.123
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults.	<b>.544</b>	.048	.107	-.015	-.167	.349	-.117	.011	-.094	-.102	-.068	.209	.009
45	When you think about it, old people have the same faults as anybody else	-.249	.178	-.224	.323	.205	<b>-.374</b>	<b>.434</b>	-.053	-.035	-.126	.101	-.081	.150

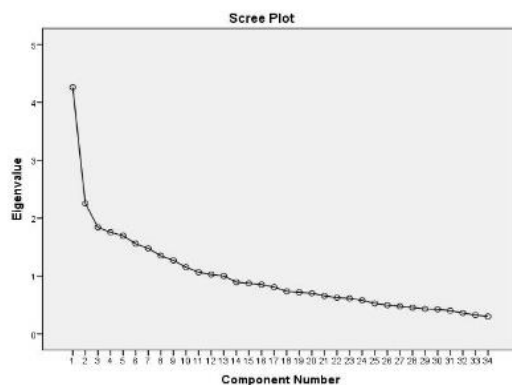
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in it.	<b>.534</b>	-.015	.047	.050	-.087	.265	.325	-.126	.072	.081	-.244	.173	.340
49	You can count on finding a nice residential neighbourhood when there is a sizeable number of old people living in it	-.131	<b>.420</b>	.122	-.149	.045	-.291	.124	<b>.404</b>	-.097	-.121	-.238	.109	-.332
51	There are a few exceptions, but in general most old people are pretty much alike.	.352	.362	.324	.136	-.097	-.270	-.018	-.239	.119	.070	-.026	-.260	.185
53	It is evident that most old people are very different from one another	-.330	-.025	-.375	-.131	.034	.176	.040	<b>.406</b>	-.142	-.159	.095	.291	.132
55	Most old people should be more concerned with their personal appearance; they're too untidy	<b>.474</b>	.145	.273	-.061	.243	.084	.045	-.030	-.217	.144	.041	.082	.031
57	Most old people seem quite clean and neat in their personal appearance.	<b>-.418</b>	.243	.175	.028	-.355	.019	-.041	.083	.364	.198	-.217	<b>.439</b>	.046
59	Most old people are irritable, grouchy, and unpleasant.	<b>.561</b>	.089	-.143	-.037	-.181	-.046	.273	.130	-.013	.301	-.131	.051	.043
61	Most old people are cheerful, agreeable, and good humoured	<b>-.447</b>	<b>.481</b>	.224	.120	.075	.200	.067	.176	.150	.112	.000	.132	-.212
62	Most old people are constantly complaining about the behaviour of the younger generation	.341	<b>.447</b>	-.183	.088	-.237	-.221	-.119	-.173	-.308	-.029	.288	-.234	.018
63	Most old people make more excessive demands for love and reassurance than anyone else.	<b>.482</b>	.327	.086	.194	.149	-.180	-.113	-.025	-.248	-.082	-.033	.260	-.087
64	Most old people need no more love and reassurance than anyone else	-.154	.165	.217	.048	-.186	.174	.171	<b>.351</b>	.110	-.357	.010	-.359	.157

Extraction Method: Principal Component Analysis.

#### 4.5.3 Two-factor solution from the 34-item KOP scale at Time 1 (N = 261)

The Principal Components Analysis (PCA) process was repeated asking for a two-factor structure from all 34 items of Kogan's scale. Orthogonal (varimax) rotation was requested to maximise the variance of the loadings within the factors (Tabachnick & Fidell 2007). Table 4.4 shows the factor loadings over both components.

**Figure 4.2 Scree plot for a 2 Factor solution at Time 1 (KOP)**



The scree plot (Figure 4.2) is suggestive of a single or two-factor solution. Only the first two components had Eigenvalues of greater than 2

**Table 4.4 Two-factor solution of 34 KOP items at time 1 (n=261)**

Rotated Component Matrix <sup>a</sup>		Component	
Item		1	2
63	Most old people make more excessive demands for love and reassurance than anyone else.	<b>.581</b>	-.011
62	Most old people are constantly complaining about the behaviour of the younger generation	<b>.541</b>	.177
59	Most old people are irritable, grouchy, and unpleasant.	<b>.513</b>	-.254
51	There are a few exceptions, but in general most old people are pretty much alike.	<b>.493</b>	.068
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults.	<b>.473</b>	-.303
55	Most old people should be more concerned with their personal appearance; they're too untidy	<b>.466</b>	-.179
10	Most old people get set in their ways and are unable to change.	<b>.457</b>	.237
38	Most old people spend too much time prying into the affairs of others and giving unsought advice.	<b>.456</b>	-.176

14	Most old people would prefer to quit work as soon as pensions or their children can support them.	<b>.435</b>	-.183
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in it.	<b>.430</b>	-.325
18	Most old people tend to let their homes become shabby and unattractive.	<b>.426</b>	-.178
1	It would probably be better if most old people lived in residential units with people their own age	<b>.384</b>	.122
6	There is something different about most old people; it's hard to find out what makes them tick	<b>.364</b>	-.028
30	Most old people make one feel ill at ease	<b>.341</b>	-.028
8	Most old people are really no different from anybody else; they're as easy to understand as younger people	<b>-.291</b>	.007
53	It is evident that most old people are very different from one another	<b>-.279</b>	.218
61	Most old people are cheerful, agreeable, and good humoured	<b>-.078</b>	<b>.614</b>
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	<b>-.148</b>	<b>.597</b>
16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.	<b>-.107</b>	<b>.448</b>
41	Most old people tend to keep to themselves and give advice only when asked.	<b>.245</b>	<b>.429</b>
49	You can count on finding a nice residential neighbourhood when there is a sizeable number of old people living in it	<b>.132</b>	<b>.415</b>
57	Most old people seem quite clean and neat in their personal appearance.	<b>-.190</b>	<b>.404</b>
34	Most old people bore others by their insistence on talking about "the good old days".	<b>.297</b>	-.363
45	When you think about it, old people have the same faults as anybody else.	<b>-.095</b>	<b>.346</b>
26	Old people have too much power in business and politics.	<b>.307</b>	-.340
24	People grow wiser with the coming of old age	<b>.150</b>	<b>.339</b>
32	Most old people are very relaxing to be with.	<b>.038</b>	<b>.335</b>
28	Old people should have power in business and politics.	<b>-.120</b>	<b>.300</b>
20	Most old people can generally be counted on to maintain a clean, attractive home.	<b>-.101</b>	<b>.259</b>
22	It is foolish to claim that wisdom comes with age	<b>.028</b>	-.227
39	One seldom hears old people complaining about the behaviour of the younger generation	<b>.035</b>	<b>.216</b>

64	Most old people need no more love and reassurance than anyone	-.025	.190
12	Most old people are capable of new adjustments when the situation demands it.	-.174	.187
4	It would probably be better if most older people lived in residential units with younger people.	.083	-.133

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Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Seventeen items loaded to values of  $\geq 0.4$  over two components explaining 19.16% of the total variance. Eleven items loaded onto Component 1 explaining 10.54% and 6 onto Component 2 explaining 8.62%. There were no cross-loadings at  $\geq 0.35$  and the items clustered onto positively and negatively worded components supporting Kogan's (1961) labels of "Prejudice" and "Appreciation". Table 4.5 indicates which items were dropped because they did not load at  $\geq 0.4$  to a single component.

**Table 4.5 Items dropped from the two-factor solution at Time 1**

Item

- 1 It would probably be better if most old people lived in residential units with people their own age
- 4 It would probably be better if most older people lived in residential units with younger people.
- 6 There is something different about most old people; it's hard to find out what makes them tick
- 8 Most old people are really no different from anybody else; they're as easy to understand as younger people
- 12 Most old people are capable of new adjustments when the situation demands it.
- 20 Most old people can generally be counted on to maintain a clean, attractive home.
- 22 It is foolish to claim that wisdom comes with age
- 24 People grow wiser with the coming of old age
- 26 Old people have too much power in business and politics.
- 28 Old people should have power in business and politics.
- 30 Most old people make one feel ill at ease
- 32 Most old people are very relaxing to be with.
- 34 Most old people bore others by their insistence on talking about "the good old days".
- 39 One seldom hears old people complaining about the behaviour of the younger generation

- 45 When you think about it, old people have the same faults as anybody else.
- 53 It is evident that most old people are very different from one another
- 64 Most old people need no more love and reassurance than anyone

#### 4.5.4 Two-factor solution from the 17-item KOP scale tested at Time 1 (n = 261)

The 17 retained items were retested on the Time 1 dataset, repeating the request for a forced two-factor, orthogonally rotated solution.

**Table 4.6 Two-factor solution of 17 KOP items at time 1 (n=261)**

Item		Component	
		1	2
63	Most old people make more excessive demands for love and reassurance than anyone else.	<b>.623</b>	.214
59	Most old people are irritable, grouchy, and unpleasant.	<b>.580</b>	-.169
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in it.	<b>.518</b>	-.261
38	Most old people spend too much time prying into the affairs of others and giving unsought advice.	<b>.512</b>	.117
55	Most old people should be more concerned with their personal appearance; they're too untidy	<b>.503</b>	.105
62	Most old people are constantly complaining about the behaviour of the younger generation	<b>.499</b>	.248
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults.	<b>.495</b>	-.267
51	There are a few exceptions, but in general most old people are pretty much alike	<b>.494</b>	-.214
14	Most old people would prefer to quit work as soon as pensions or their children can support them	<b>.489</b>	.201
18	Most old people tend to let their homes become shabby and unattractive	<b>.431</b>	-.090
10	Most old people get set in their ways and are unable to change	<b>.410</b>	.329
61	Most old people are cheerful, agreeable, and good humoured	.102	<b>.662</b>

36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	.089	<b>.622</b>
16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody	-.211	<b>.497</b>
57	Most old people seem quite clean and neat in their personal appearance	-.250	<b>.479</b>
41	Most old people tend to keep to themselves and give advice only when asked	.267	<b>.448</b>
49	You can count on finding a nice residential neighbourhood when there is a sizeable number of old people living in it	.301	<b>.437</b>

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

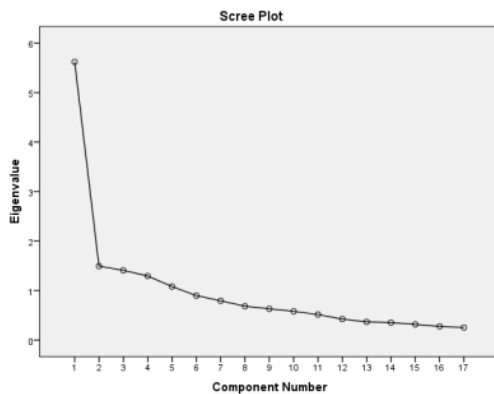
All items loaded to the same factors at  $\geq 0.4$ , explaining 42.16% of the solution. Factor 1 explained 25.62% and Factor 2 explained 16.54%. The seventeen items were then tested on the Time 2 data set to assess the stability of the two-factor solution (Field 2009).

#### 4.5.5 Two-factor solution from the 17-item KOP scale at Time 2 (n = 239)

The smaller population sample (n=239) set was suitable for conducting PCA. The KMO value was acceptable at .84 and Bartlett's test was significant at 0.000. Two positively worded items, 41 and 47, did not correlate with any other at  $r \geq 0.3$  but were retained until factor loadings could be examined at Time 2. No communalities reached a value of 0.6.

A two-factor solution at Time 2 with the 17 items extracted at Time 1 was requested using orthogonal (varimax) rotation. The two-factor solution explained 41.84% of the total variance with values of 24.48% for Component 1 and 17.36% for Component 2.

**Figure 4.3 Scree plot for a two-factor solution at Time 2 from 17 KOP items**



The Scree plot (Figure 4.3) strongly indicated a single-factor solution.

**Table 4.7 Two-factor solution of 17 KOP items at Time 2 (n=239)**

		Rotated Component Matrix <sup>a</sup>	
		Component	
		1	2
62	Most old people are constantly complaining about the behaviour of the younger generation	<b>.766</b>	-.088
63	Most old people make more excessive demands for love and reassurance than anyone else	<b>.735</b>	.027
59	Most old people are irritable, grouchy, and unpleasant	<b>.644</b>	<b>.408</b>
55	Most old people should be more concerned with their personal appearance; they're too untidy	<b>.583</b>	.010
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults	<b>.551</b>	<b>.480</b>
51	There are a few exceptions, but in general most old people are pretty much alike	<b>.549</b>	.389
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	<b>-.538</b>	-.240
38	Most old people spend too much time prying into the affairs of others and giving unsought advice	<b>.523</b>	<b>.435</b>
10	Most old people get set in their ways and are unable to change	<b>.495</b>	.021
16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody	<b>-.440</b>	-.351



14	Most old people would prefer to quit work as soon as pensions or their children can support them	<b>.408</b>	<b>.367</b>
49	You can count on finding a nice residential neighbourhood when there is a sizeable number of old people living in it	.136	<b>-.611</b>
57	Most old people seem quite clean and neat in their personal appearance	-.190	<b>-.606</b>
18	Most old people tend to let their homes become shabby and unattractive	.280	<b>.605</b>
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in	<b>.437</b>	<b>.554</b>
61	Most old people are cheerful, agreeable, and good humoured	<b>-.404</b>	<b>-.539</b>
41	Most old people tend to keep to themselves and give advice only when asked	-.141	<b>.429</b>

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Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Table 4.6 above showed eight items cross-loading over both components at  $\geq 0.35$ . The distinction between positive and negatively worded factors extracted at Time 1 was lost, demonstrating poor factor stability of the Time 1 components (Tabachnick & Fidell 2007). The Scree plot suggested a single-factor solution and the PCA was rerun to force an unrotated single-factor solution.

#### 4.5.6 Single-factor solution of KOP

The single-factor unrotated solution was tested at Time 2 (n=239), Time 1 (n=261) and Time 3 (n= 205). Testing assumptions for suitability of the Time 3 dataset for PCA, produced an acceptable KMO value at .77 and Bartlett's test of sphericity was significant at 0.000. All variables on the correlation matrix of the items from the single-factor solution had at least one value of  $r \geq .3$ , suggesting that there was a relationship between the variables. Communalities remained low and all were under 0.6.

Items were dropped at each iteration until all items correlated at  $\geq 0.4$  (see Appendix XI for factor loadings are correlation matrices at each iteration). Table 4.8 below demonstrates the iterations and the decision- making processes for dropping or retaining items. The final single-factor solution for Kogans's (1961) KOP is presented in table 4.9.

**Table 4.8 Iterations of the single-factor solution of KOP using PCA**

Time tested/number of items	Results	Decision
Time 2 (n=239) 17 items	15 items loaded to $\geq 0.4$ explaining 33.05% of the variance.	Drop: 41 Most old people tend to keep to themselves and give advice only when asked 49 You can count on finding a nice residential neighbourhood when there is a sizeable number of people living in it Retest at Time 2
Time 2 (n=239) 15 items	Thirteen of the 15 items loaded to $\geq 0.4$ explaining 35.10% of the variance.	Drop: 10 Most old people get set in their ways and are unable to change. 62 Most old people are constantly complaining about the behaviour of the younger generation Retest at Time 2
Time 2 (n=239) 13 items	All 13 items loaded to $\geq 0.4$ explaining 39.40% of the variance.	Retest at Time 1
Time 1 (n=261) 13 items	12 items loaded to $\geq 0.4$ explaining 24.25% of the variance.	Drop: 51 There are a few exceptions, but in general most old people are pretty much alike Retest at Time 1
Time 1 (n=261) 12 items	All 12 items loaded to $\geq 0.4$ explaining 25.85% of the variance	Retest at Time 3
Time 3 (n=205) 12 items	11 items loaded to $\geq 0.4$ explaining 28.33% of the variance	Drop 16 Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody Retest at Time 3
Time 3 (n=205) 11 items	All 11 items loaded to $\geq 0.4$ explaining 33.51% of the variance	Retest at Time 2 for final factor solution
Time 2 (n=239)  11 items	All 11 items loaded to $\geq 0.4$ explaining 40.50% of the variance	Retest at Time 1 for final factor solution
Time 1 (n=261) 11 items	All 11 items loaded to $\geq 0.4$ explaining 26.75% of the variance	Final factor solution

**Table 4.9 The final single-factor solution of 11 KOP items**

<b>Component Matrix<sup>a</sup></b>		
		<b>Component 1</b>
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults	<b>.737</b>
59	Most old people are irritable, grouchy, and unpleasant	<b>.677</b>
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in	<b>.635</b>
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	<b>-.580</b>
63	Most old people make more excessive demands for love and reassurance than anyone else	<b>.578</b>
38	Most old people spend too much time prying into the affairs of others and giving unsought advice	<b>.562</b>
55	Most old people should be more concerned with their personal appearance; they're too untidy	<b>.549</b>
57	Most old people seem quite clean and neat in their personal appearance	<b>-.546</b>
18	Most old people tend to let their homes become shabby and unattractive	<b>.534</b>
14	Most old people would prefer to quit work as soon as pensions or their children can support them	<b>.455</b>
61	Most old people are cheerful, agreeable, and good humoured	<b>-.453</b>

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

The factor reduction process produced a single-factor solution comprising eight negative and three positive items. Undertaking Cattell's Salient Similarity Index (SSI) (Cattell & Baggaley 1960) was not required.

#### **4.6 Reliability of the 11-item KOP factor**

Item responses to the negatively worded questions from each data set from Time 1, Time 2 and Time 3 were reversed to undertake reliability analysis (See Appendix IX for inter-item matrices) of the single-factor using Cronbach's Alpha (Field 2009). The single-factor at Time 1 was proved to have satisfactory internal reliability with an alpha value of .72 (Field 2009) which would not be improved by removing any item. The factor at time 2 had good reliability (Field 2009) with a Cronbach's alpha of .84. The removal of any item would not improve this alpha score. The factor extraction at Time 3 was satisfactory with an alpha value of .79, which would not be improved by removing any item from the factor. The factor was reliable at all three time points. The meaning of the eleven items which loaded to the factor were assessed to label the factor construct (Tabachnick & Fidell 2009).

#### **4.7 Labelling the extracted factor from KOP**

The extracted factor pattern does not accommodate Kogan's (1961) two-factor scale which he labelled "prejudice" and "appreciation". This extracted factor was labelled as "stereotypes of older people" to describe a set of oversimplified and fixed perceptions related to older people. Having extracted and labelled a reliable factor from KOP, the same exploratory procedures were undertaken on McLafferty's 30-item scale.

#### **4.8 Exploratory factor analysis of McLafferty's Attitudes Towards Nursing Older People scale (MANOP)**

Principal Components Analysis (PCA) was undertaken on the 28 items retained after data screening and cleaning of the MANOP scale. Factors extracted from MANOP underwent paired testing at all time points. Findings are presented below.

##### **4.8.1 Measures of sampling adequacy**

The data set met the assumptions for factor analysis. The Kaiser-Mayer-Olken (KMO) measure of sampling adequacy was  $> 0.5$  at .64. Bartlett's test for sphericity, showed a significance value of 0.00. Eight items within the correlation matrix (see Appendix XIII) did not have any correlations to a value of  $r \geq .3$ , suggesting they may load onto single components (Tabachnick & Fidell 2007). Communalities were satisfactory with N=15 items having values of  $\geq 0.6$ .

##### **4.8.2 The initial exploratory factor reduction method for MANOP at Time 1 (n=239)**

An initial unrotated exploratory PCA was run on 28 MANOP items ( $n = 261$  participants) with no a priori factor structure. Maximum iterations for convergence were set at 25 and factor extraction was based on eigenvalues of 1 or greater (Ferguson & Cox 1993).

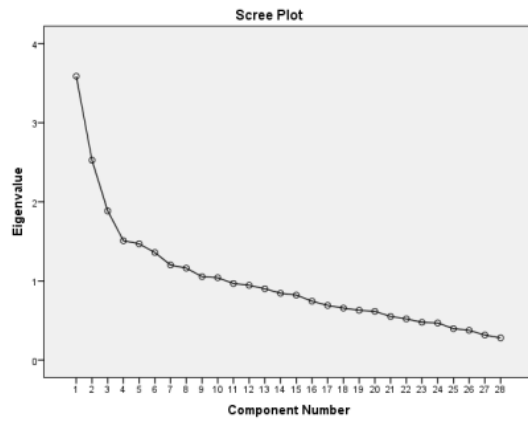
The scree plot, figure 4.4, suggested a break at 7 components but a clearer break for a three-factor solution. The Eigenvalues of the first three components were all nearer 2 (Tabachnick & Fidell 2007).

The initial exploratory analysis, see Table 4.9, extracted a ten-factor solution, explaining 59.99% variance.

Four items loaded to component 1 at a value of  $\geq .4$  with no cross-loadings Six items loaded to component 2 with no cross-loadings. Components 7 and 9 each had a single item loading

to  $\geq .4$ . The remaining had two items loading without cross-loading. There was no clear factor structure and the PCA was repeated at Time 1 forcing a three-factor solution.

**Figure 4.4 Scree plot for an exploratory solution at Time 1 from 28 MANOP items**



**Table 4.10 MANOP Time 1 first iteration with 28 items (n=239)**

**Component Matrix<sup>a</sup>**

	Component									
	1	2	3	4	5	6	7	8	9	10
Most nurses who work with older adults are enthusiastic about their work	<b>.733</b>	-.136	.302	-.073	<b>-.035</b>	.024	-.100	.152	.112	-.003
Most nurses will take time to chat to older patients	<b>.576</b>	-.172	.026	-.089	.049	-.047	<b>.435</b>	.004	.192	-.129
Nursing students are well prepared for working with older adults	<b>.553</b>	-.123	-.078	-.024	.189	.169	.047	-.235	-.040	.111
Older people are treated as individuals in the acute clinical areas	<b>.547</b>	-.252	.201	.229	.003	-.100	.210	-.063	-.303	.077
Most nurses who work in the care of older adults settings want to be there	<b>.534</b>	-.161	.276	-.131	.001	-.086	-.163	.005	-.098	<b>-.404</b>
Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.533</b>	-.194	<b>.407</b>	-.012	.017	.013	-.218	.080	.155	-.132
Older adults in the care of older adults setting are treated as individuals	<b>.501</b>	-.187	.051	.230	.332	.102	.217	-.079	-.096	.127
Most nursing students are surprised that older adults can hold a sensible conversation	<b>-.384</b>	.288	.260	.332	-.106	.253	.016	-.132	-.141	-.226
All older adults are different from each other	.212	<b>.544</b>	.121	.054	.069	-.362	-.033	.012	.186	.045

There is more to learn in the care of older adults setting than basic nursing skills	.080	<b>.524</b>	.232	.222	.206	.072	.107	.097	.091	-.094
It is essential that trained nurses who work with older adults are good role models	.031	<b>.494</b>	.205	.322	.189	.000	-.098	-.101	.264	.248
It is interesting to talk to older adults	.160	<b>.449</b>	-.346	-.104	.043	.128	.298	.183	.174	-.051
Most lecturers think working with older people is second rate	-.335	<b>-.441</b>	.247	.137	.221	.106	.067	.054	-.046	-.366
It is essential that trained nurses motivate nursing students to feel positively about older adults	.059	<b>.430</b>	.239	.094	.250	.238	.003	-.216	.128	-.128
Nurses who work with older adults need to know the ageing process	.008	.307	<b>.501</b>	-.134	.131	<b>-.439</b>	-.081	-.040	-.119	.153
Most nursing students are surprised that older adults are “normal”	-.271	.055	<b>.468</b>	-.345	-.005	<b>.449</b>	.037	-.045	-.192	-.010
Most lecturers are out-of-date with the advances in looking after older adults	-.380	-.202	.293	<b>.546</b>	.054	-.034	.171	.039	.023	.160
Most lecturers promote an interest in older adults	.186	.336	.151	<b>-.526</b>	-.130	.160	-.061	-.393	-.006	.209
Nurses in the older adults setting will encourage patients to self-care	.388	.155	.126	.058	<b>-.557</b>	-.131	.047	.328	-.007	-.067
Most nursing students are pleasantly surprised at how many acutely ill patients there are in the care of older adults setting	-.172	.124	.309	.039	<b>-.551</b>	.275	.331	-.108	.045	-.115
Caring for older adults is repetitive and boring	<b>-.415</b>	-.085	.184	-.152	<b>.456</b>	-.297	-.005	.138	-.155	-.077



Personality remains the same as we grow older	.242	-.101	.088	-.040	.263	<b>.429</b>	.183	.211	-.117	.356
Most patients in the care of older adults setting are incontinent of urine	-.323	-.102	.335	-.313	.050	-.341	.381	-.281	.149	-.136
Most nursing students have little idea what to expect in the care of older adults setting	-.164	.216	.278	-.107	-.150	-.105	.258	<b>.551</b>	-.218	.239
Most nursing students think the care of older adults setting is about basic nursing care	-.206	.018	.125	-.318	.284	.305	-.241	<b>.459</b>	.260	-.093
Nurses who work with older adults do not need to be clever	-.063	-.360	.240	.245	-.207	.068	-.220	.010	<b>.512</b>	.098
Most lecturers will be fully supportive of nurses who want to work with older adults	.284	<b>.419</b>	-.021	.230	-.053	.068	-.377	.004	<b>-.440</b>	-.170
Most older adults have lost their sense of humour	-.176	-.391	.304	-.052	-.182	-.010	-.269	-.100	-.056	<b>.408</b>

---

Extraction Method: Principal Component Analysis. a. 10 components extracted.

#### 4.8.3 Three-factor solution of MANOP at Time 1 (n=261)

Principal Components Analysis (PCA) was repeated asking for a three-factor structure of the 28 MANOP items using orthogonal (varimax) rotation. Findings are shown in Table 4.10 below.

**Table 4.11 Three-factor solution of 28 MANOP items at time 1 (n=261)**

		Component Matrix <sup>a</sup>		
		1	2	3
60	Most nurses who work with older adults are enthusiastic about their work	<b>.733</b>	-.136	.302
48	Most nurses will take time to chat to older patients	<b>.576</b>	-.172	.026
56	Nursing students are well prepared for working with older adults	<b>.553</b>	-.123	-.078
2	Older people are treated as individuals in the acute clinical areas	<b>.547</b>	-.252	.371
54	Most nurses who work in the care of older adults settings want to be there	<b>.534</b>	-.161	.276
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.533</b>	-.194	.407
15	Older adults in the care of older adults setting are treated as individuals	<b>.501</b>	-.187	.351
5	Caring for older adults is repetitive and boring	<b>-.415</b>	-.085	.184
37	Nurses in the older adults setting will encourage patients to self-care	.388	.155	.126
50	Most nursing students are surprised that older adults can hold a sensible conversation	-.384	.288	.260
35	Most lecturers are out-of-date with the advances in looking after older adults	-.380	-.202	.293
44	Personality remains the same as we grow older	.242	-.101	.088
17	Most nursing students think the care of older adults setting is about basic nursing care	-.206	.018	.125
23	All older adults are different from each other	.212	<b>.544</b>	.121
19	There is more to learn in the care of older adults setting than basic nursing skills	.080	<b>.524</b>	.232

52	It is essential that trained nurses who work with older adults are good role models	.031	<b>.494</b>	.205
29	It is interesting to talk to older adults	.160	<b>.449</b>	-.346
13	Most lecturers think working with older people is second rate	-.355	<b>-.441</b>	.247
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	.059	<b>.430</b>	.239
46	Most lecturers will be fully supportive of nurses who want to work with older adults	.384	<b>.419</b>	-.021
33	Most older adults have lost their sense of humour	-.176	-.391	.304
31	Nurses who work with older adults do not need to be clever	-.063	-.360	.240
25	Most lecturers promote an interest in older adults	.186	.336	.151
9	Nurses who work with older adults need to know the ageing process	.008	.307	<b>.501</b>
27	Most nursing students are surprised that older adults are “normal”	-.271	.055	<b>.468</b>
7	Most patients in the care of older adults setting are incontinent of urine	-.323	-.102	.335
40	Most nursing students are pleasantly surprised at how many acutely ill patients there are in the care of older adults setting	-.172	.124	.309
3	Most nursing students have little idea what to expect in the care of older adults setting	-.164	.216	.278

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Extraction Method: Principal Component Analysis.

a. 3 components extracted.

Thirteen items loaded to  $\geq 0.4$  across the three components without cross-loading, explaining only a cumulative variance of 23.40%. Only two items were extracted to Component 3 and the underlying constructs could not be interpreted.

Nursing students' lack of clinical and educational experience at Time 1 may have confounded the data analysis. By Time 2, nursing students had nursed older people. The initial exploratory factor reduction was repeated with the Time 2 data as the index dataset instead

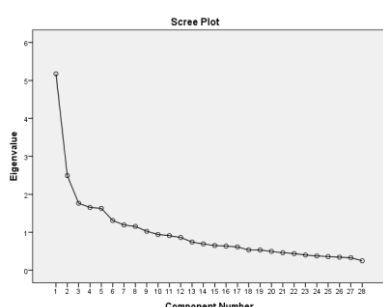
of Time 1 data. The potential impact of the research design on these circumstances is discussed in Chapter 5.

#### 4.8.4 Exploratory factor reduction method for MANOP at Time 2 (n=239)

The dataset at Time 2 was suitable to run an exploratory factor analysis. The Kaiser-Mayer-Olken (KMO) acceptability was  $> 0.5$  at .75. Bartlett's test for sphericity, showed a significance value of .000. Nine items did not correlate at a value of  $r \geq .3$  within the correlation matrix (see Appendix XIV) and twenty six items had a communality value of  $> .6$ .

An initial unrotated PCA was run with maximum iterations for convergence set at 25. Factor extraction was based on eigenvalues of 1 or greater.

**Figure 4.5 Scree plot for an exploratory solution at Time 2 from 28 MANOP items**



The Scree plot (see Figure 4.5) was inconclusive. There was a break at 5 with Eigen values of  $\geq 1$ , but the plot was more suggestive of a two-factor structure.

**Table 4.12 Exploratory factor solution from 28 MANOP items at Time 2 (n=239)**

Component Matrix <sup>a</sup>		Component								
		1	2	3	4	5	6	7	8	9
13	Most lecturers think working with older people is second rate	-.669	-.061	.028	.077	.026	.322	-.281	.089	-.092
46	Most lecturers will be fully supportive of nurses who want to work with older adults	.622	.162	.145	-.344	.186	.151	-.046	-.001	-.039

60	Most nurses who work with older adults are enthusiastic about their work	<b>.616</b>	-.131	.149	.266	.177	.041	.227	-.232	.189
33	Most older adults have lost their sense of humour	<b>-.607</b>	-.212	.017	-.158	.092	.311	.080	-.232	-.179
23	All older adults are different from each other	<b>.581</b>	.365	-.110	-.070	.067	-.170	-.137	-.138	-.207
5	Caring for older adults is repetitive and boring	<b>-.574</b>	.079	-.057	.155	.358	.065	.160	.095	<b>.453</b>
29	It is interesting to talk to older adults	<b>.565</b>	<b>.432</b>	-.139	-.154	-.061	-.061	-.195	-.188	.068
37	Nurses in the older adults setting will encourage patients to self-care	<b>.524</b>	-.256	.348	-.037	-.023	.216	-.036	-.261	.037
2	Older people are treated as individuals in the acute clinical areas	<b>.486</b>	-.352	.225	.193	-.016	-.163	.000	.344	-.070
7	Most patients in the care of older adults setting are incontinent of urine	<b>-.484</b>	.145	.240	.289	.125	-.309	.202	-.077	.127
56	Nursing students are well prepared for working with older adults	<b>.440</b>	-.257	-.130	-.020	-.017	.184	<b>.414</b>	.231	.118
54	Most nurses who work in the care of older adults settings want to be there	.399	-.321	.333	.241	.181	.279	.015	-.277	.284
52	It is essential that trained nurses who work with older adults are good role models	.252	<b>.588</b>	-.010	.127	.291	.033	.158	.091	.049
3	Most nursing students have little idea what to expect in the care of older adults setting	-.187	<b>.534</b>	.399	.154	.131	-.173	-.087	-.060	-.240
19	There is more to learn in the care of older adults setting than basic nursing skills	.255	<b>.450</b>	-.158	.386	-.138	.344	-.030	.106	.168
27	Most nursing students are surprised that older adults are "normal"	-.214	<b>.434</b>	.222	-.050	-.398	.205	.312	-.161	.022
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	.331	.396	-.099	.362	-.043	.257	-.077	.207	-.208
31	Nurses who work with older adults do not need to be clever	-.369	-.273	<b>.529</b>	-.137	.139	.051	.064	.145	-.149

15	Older adults in the care of older adults setting are treated as individuals	.390	-.138	<b>.479</b>	.180	-.188	<b>-.435</b>	-.097	.106	-.029
50	Most nursing students are surprised that older adults can hold a sensible conversation	-.265	.305	<b>.401</b>	-.261	-.323	.050	-.096	-.353	.158
35	Most lecturers are out-of-date with the advances in looking after older adults	<b>-.476</b>	.006	.121	<b>.537</b>	-.183	-.182	.128	.020	-.142
25	Most lecturers promote an interest in older adults	<b>.441</b>	.075	.151	<b>-.448</b>	.127	-.172	.086	.329	.199
48	Most nurses will take time to chat to older patients	<b>.400</b>	-.168	-.177	<b>.435</b>	-.067	-.178	-.115	-.351	.076
9	Nurses who work with older adults need to know the ageing process	.090	.273	.114	.053	<b>.570</b>	.102	.388	-.033	-.352
44	Personality remains the same as we grow older	.151	-.145	-.191	.128	<b>-.553</b>	.135	.188	.148	-.087
40	Most nursing students are pleasantly surprised at how many acutely ill patients there are in the care of older adults setting	.098	.303	.367	-.120	<b>-.481</b>	.097	.291	.182	.082
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	.395	-.219	.312	.187	.028	<b>.412</b>	-.248	.110	-.260
17	Most nursing students think the care of older adults setting is about basic nursing care	-.237	.253	.254	.116	.117	.126	<b>-.479</b>	.324	.358

Extraction Method: Principal Component Analysis.

a. 9 components extracted.

The initial exploratory analysis at Time 2 extracted a nine-factor solution, explaining 52.78% variance. Eight items loaded to  $\geq 0.4$  with no cross-loadings in Component 1 with four items loading in Component 2. No other component had more than 2 items loading without cross-

loading. The Scree plot suggested a two-factor structure and so a forced two-factor solution was tried at Time 2.

#### 4.8.5 Two-factor solution of 28-item MANOP at Time 2 (n=239)

PCA was run, asking for a forced two-factor solution with Varimax rotation. Seventeen items loaded to  $\geq .4$  over two components with no cross-loadings at  $\geq .35$ , explaining 27.40% of the total variance.  $n = 11$  items loaded to component 1 explaining 15.11% of the total variance. Six items loaded to component 2 explaining 12.28% of the variance (See Table 4.12).

**Table 4.13 Two-factor solution of 28 MANOP items at Time 2 (n=239)**

		Rotated Component Matrix <sup>a</sup>	
		Component 1	Component 2
2	Older people are treated as individuals in the acute clinical areas	<b>.600</b>	.005
60	Most nurses who work with older adults are enthusiastic about their work	<b>.574</b>	.260
37	Nurses in the older adults setting will encourage patients to self-care	<b>.573</b>	.105
54	Most nurses who work in the care of older adults settings want to be there	<b>.512</b>	-.021
5	Caring for older adults is repetitive and boring	<b>-.509</b>	-.277
56	Nursing students are well prepared for working with older adults	<b>.506</b>	.055
13	Most lecturers think working with older people is second rate	<b>-.502</b>	<b>-.446</b>
7	Most patients in the care of older adults setting are incontinent of urine	<b>-.476</b>	-.171
3	Most nursing students have little idea what to expect in the care of older adults setting	<b>-.468</b>	.319
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.447</b>	.058
27	Most nursing students are surprised that older adults are "normal"	<b>-.430</b>	.223
48	Most nurses will take time to chat to older patients	<b>.421</b>	.102
15	Older adults in the care of older adults setting are treated as individuals	.396	.120

50	Most nursing students are surprised that older adults can hold a sensible conversation	-.394	.088
35	Most lecturers are out-of-date with the advances in looking after older adults	-.387	-.278
17	Most nursing students think the care of older adults setting is about basic nursing care	-.341	.063
44	Personality remains the same as we grow older	.208	-.027
29	It is interesting to talk to older adults	.199	<b>.683</b>
23	All older adults are different from each other	.251	<b>.638</b>
52	It is essential that trained nurses who work with older adults are good role models	-.146	<b>.623</b>
33	Most older adults have lost their sense of humour	<b>-.363</b>	<b>-.531</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	.031	<b>.515</b>
19	There is more to learn in the care of older adults setting than basic nursing skills	-.062	<b>.513</b>
46	Most lecturers will be fully supportive of nurses who want to work with older adults	<b>.404</b>	<b>.500</b>
31	Nurses who work with older adults do not need to be clever	-.135	<b>-.439</b>
25	Most lecturers promote an interest in older adults	.310	.322
40	Most nursing students are pleasantly surprised at how many acutely ill patients there are in the care of older adults setting	-.101	.302
9	Nurses who work with older adults need to know the ageing process	-.090	.273

---

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Three items (below) cross-loaded at  $\geq .35$  and were dropped from further analysis.

13 Most lecturers think working with older people is second rate

46 Most lecturers will be fully supportive of nurses who want to work with older adults



33 Most older adults have lost their sense of humour

Eight items did not load to  $\geq .4$  and were also dropped. These were:

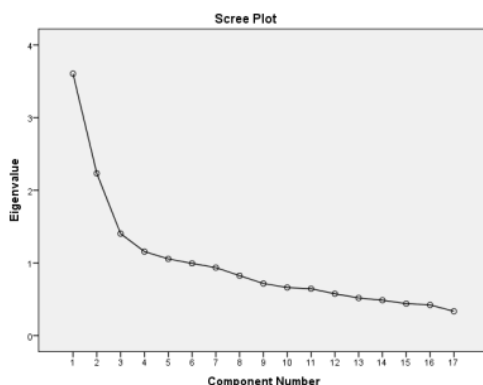
- 9 Nurses who work with older adults need to know the ageing process
- 15 Older adults in the care of older adults setting are treated as individuals
- 17 Most nursing students think the care of older adults setting is about basic nursing care
- 25 Most lecturers promote an interest in older adults
- 35 Most lecturers are out-of-date with the advances in looking after older adults
- 40 Most nursing students are pleasantly surprised at how many acutely ill patients there are in the care of older adults setting
- 44 Personality remains the same as we grow older
- 50 Most nursing students are surprised that older adults can hold a sensible conversation

The remaining seventeen items loaded at  $\geq .4$  to a two-factor solution which explained 27.40% cumulatively. The Scree plot confirmed a two-factor solution which was rerun at Time 2 with the seventeen items.

#### 4.8.6 Two-factor solution of 17-item MANOP at Time 2 (n=239)

A PCA was run on the seventeen remaining MANOP items, forcing a two-factor structure with varimax rotation. Assumptions were met with only one item on the correlation matrix failing to correlate with any other item.

**Figure 4.6 Scree plot for a two-factor solution at Time 2 from 17 MANOP items**



The Scree plot (Figure 4.6) still suggested a two-factor solution.

Ten items loaded to Component 1, with no cross-loadings, explaining 19.10 % variance and six loaded

to Component 2 with no cross-loadings and explaining 16.22% variance. The two-factor solution cumulatively explained 34.32% of total variance (see Table 4.14).

**Table 4.14 Two-factor solution of 17 MANOP items at Time 2 (n=239)**

		Rotated Component Matrix <sup>a</sup>	
		Component	
		1	2
37	Nurses in the older adults setting will encourage patients to self-care	<b>.658</b>	.049
60	Most nurses who work with older adults are enthusiastic about their work	<b>.607</b>	.253
2	Older people are treated as individuals in the acute clinical areas	<b>.602</b>	-.019
54	Most nurses who work in the care of older adults settings want to be there	<b>.594</b>	-.036
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.531</b>	.063
5	Caring for older adults is repetitive and boring	<b>-.509</b>	-.278
56	Nursing students are well prepared for working with older adults	<b>.500</b>	.080
7	Most patients in the care of older adults setting are incontinent of urine	<b>-.483</b>	-.208
3	Most nursing students have little idea what to expect in the care of older adults setting	<b>-.430</b>	.257
48	Most nurses will take time to chat to older patients	<b>.427</b>	.226
27	Most nursing students are surprised that older adults are “normal”	-.396	.161
29	It is interesting to talk to older adults	.170	<b>.684</b>
23	All older adults are different from each other	.219	<b>.667</b>
52	It is essential that trained nurses who work with older adults are good role models	-.141	<b>.622</b>
19	There is more to learn in the care of older adults setting than basic nursing skills	-.019	<b>.607</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	.042	<b>.592</b>
31	Nurses who work with older adults do not need to be clever	-.106	<b>-.549</b>

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

One item below, did not load to either component and was dropped from further analysis.

27 Most nursing students are surprised that older adults are “normal”

A further PCA was run at Time 2 with the remaining sixteen items to confirm that all sixteen would load over the two components.

#### 4.8.7 Two-factor solution of 16 item MANOP at Time 2 (n=239)

The same extraction method was used for sixteen items as for the 17 item PCA: a two-factor solution with Varimax rotation. One item did not correlate with any other in the matrix and no communalities reached 0.6. All sixteen items loaded to the two components at  $\geq .4$  with no cross-loadings at  $\geq .35$  (see Table 4.15). Again, ten items loaded to Component 1 explaining 19.42% of the total variance. Six items loaded to Component 2 explaining 16.33%. Cumulatively, 35.58% of total variance was explained by the two-factor solution.

**Table 4.15 Two-factor solution of 16 MANOP items at Time 2 (n=239)**

		Rotated Component Matrix <sup>a</sup>	
		Component	
		1	2
37	Nurses in the older adults setting will encourage patients to self-care	<b>.682</b>	.013
60	Most nurses who work with older adults are enthusiastic about their work	<b>.626</b>	.226
54	Most nurses who work in the care of older adults settings want to be there	<b>.611</b>	-.068
2	Older people are treated as individuals in the acute clinical areas	<b>.599</b>	-.034
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.551</b>	.032
5	Caring for older adults is repetitive and boring	<b>-.524</b>	-.258

56	Nursing students are well prepared for working with older adults	<b>.496</b>	.073
7	Most patients in the care of older adults setting are incontinent of urine	<b>-.480</b>	-.203
48	Most nurses will take time to chat to older patients	<b>.430</b>	.217
3	Most nursing students have little idea what to expect in the care of older adults setting	<b>-.401</b>	.249
29	It is interesting to talk to older adults	.187	<b>.681</b>
23	All older adults are different from each other	.223	<b>.672</b>
52	It is essential that trained nurses who work with older adults are good role models	-.131	<b>.631</b>
19	There is more to learn in the care of older adults setting than basic nursing skills	.005	<b>.601</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	.065	<b>.584</b>
31	Nurses who work with older adults do not need to be clever	-.099	<b>-.564</b>

---

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

All items were retained and the sixteen items from MANOP were retested on the datasets from Time 1 and Time 3 to check the stability of the extracted components.

#### **4.8.8 Two-factor solution of MANOP**

The two-factor rotated solution was retested at Time 3, and again at Times 1 and 2. The process used PCA with Varimax rotation for all retesting. Items were dropped at each iteration until all items correlated at  $\geq 0.4$  and demonstrated factor stability (see Appendix XV for the correlations matrices and factor loadings). Table 4.16 demonstrates the decision making processes over the iterative process. The final factor solution for McLafferty's untested MANOP is presented in table 4.17. Sampling adequacies were acceptable to test the 16-item scale at Time 3. The KMO value was .72 and Bartlett's Test of Sphericity was

significant at 0.000. Communalities were fair but no item had a communality value of  $> .6$ . All

items on the correlation matrix correlated to other items at a value of  $r \geq .3$ .

**Table 4.16 Iterations of the two- factor solution of MANOP using PCA**

Time tested/number of items	Results	Decision
Time 3 (n=205) 16 items	Fifteen items loaded over two components explaining 35.72% of the total variance. Seven items loaded to component 1, explaining 19.36% Eight items loaded to Component 2, explaining 16.35% variance. Items 5 and 7 loaded to different components from Time 2 suggesting factor instability	Drop Item 3 Most nursing students have little idea what to expect in the care of older adults setting Retest at Time 2
Time 2 (n=239) 15 items	All items loaded at $\geq 0.4$ over two components Items 5 and 7 still loaded to the opposite from Time 3. The cumulative variance explained was 37.29%. Component 1 explained 20.19% variance Component 2 explained 17.09% variance	Test at Time 1 to try to establish a factor stability suitable for nursing students with and without clinical experience nursing older people.  Test at Time 1 would also check which components the unstable items would load to.
Time 1 (n=261) 15 items	Thirteen items loaded at $\geq 0.4$ over two components to the same factor extraction pattern from Time 2. 31.76% variance was explained. Eight items loaded to Component 1, explaining 19.23% variance Five items loaded to Component 2 explaining 12.53% variance.	Drop Item 7 Most patients in the care of older adults settings are incontinent of urine Item 31 Nurses who work with older adults don't need to be clever Repeat at Time 2 to check factor stability
Time 2 (n=239) 13 items	All items loaded to $\geq .4$ with no cross-loadings, explaining 39.57% Seven items loaded to Component 1 explaining 22.08% variance Six items loaded to Component 2 explaining 17.49% variance	Repeat at Time 3 to check factor stability
Time 3 (n=205) 13 items	Twelve loaded at $\geq .4$ to both components, in the same pattern, explaining 37.16% variance Seven items loaded to Component 1 explaining 21.04% variance Five items loaded to Component 2 explaining 16.12% variance Item 5 had not loaded to the same components between Time 2 and Time 3 when testing the 16-item scale	Drop Item 5 Caring for older adults is repetitive and boring  Retest twelve items at all time points
Time 2 (n=239) 12 items	All items loaded at $\geq .4$ to both components, in the same pattern, explaining 42.32% variance Seven items loaded to Component 1 explaining 24.30% variance Five items loaded to Component 2 explaining 18.02% variance	Retest for factor stability at Time 3

Time 3 (n=205) 12 items	All items loaded at $\geq .4$ to both components, in the same pattern, explaining 40.385% variance Seven items loaded to Component 1 explaining 23.18% variance Five items loaded to Component 2 explaining 17.20% variance	Retest for factor stability at Time 1
Time 1 (n=261) 12 items	All items loaded at $\geq .4$ to both components, in the same pattern, explaining 37.85% variance Seven items loaded to Component 1 explaining 22.79% variance Five items loaded to Component 2 explaining 15.07% variance	
Factors are stable across all Time points.		

#### 4.9 Reliability of the two-factor 12-item MANOP

To test the internal reliability of each of the extracted factors, reliability analysis was undertaken using Cronbach's Alpha on reversed datasets at all time points.

Component 1 with seven items (See Appendix XVI for inter-item matrices) had satisfactory reliability at all the time points (Bryman & Cramer 2008). The Cronbach's alpha value was .73 at Time 1, .71 at Time 2 and .73 at Time 3 No alpha value would be improved by removing any item.

Component 2 with five items (See Appendix XVII for inter-item matrices) had less robust reliability although reliability values can fall slightly with fewer scale items (Field 2009). The Cronbach's alpha value was poor with a value of .54 at Time 1, but satisfactory at Time 2 at .67 and .61 at Time 3. No alpha value would be improved by removing any item.

The extracted factors were assessed to label the construct of the items loading to the two factors (Tabachnick & Fidell 2009).

**Table 4.17 Final two-factor solution of 12-item MANOP at all Time points, demonstrated**

**using the Time 2 database (n=239)**

Item		Component	
		1	2
54	Most nurses who work in the care of older adults settings want to be there	<b>.718</b>	-.053
60	Most nurses who work with older adults are enthusiastic about their work	<b>.700</b>	.224
37	Nurses in the older adults setting will encourage patients to self-care	<b>.675</b>	.013
2	Older people are treated as individuals in the acute clinical areas	<b>.620</b>	-.049
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.577</b>	.061
56	Nursing students are well prepared for working with older adults	<b>.455</b>	.116
48	Most nurses will take time to chat to older patients	<b>.455</b>	.191
52	It is essential that trained nurses who work with older adults are good role models	-.072	<b>.687</b>
23	All older adults are different from each other	.189	<b>.684</b>
29	It is interesting to talk to older adults	.147	<b>.668</b>
19	There is more to learn in the care of older adults setting than basic nursing skills	.022	<b>.618</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	.086	<b>.615</b>
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 3 iterations.			

#### **4.10 Labelling the extracted factors from MANOP**

Two items were dropped from McLafferty's (2006) 30-item scale during the screening process. After conducting exploratory PCA, the 28 items were reduced to a 12-item two-factor solution. The underlying constructs of the items loading to each factor were labelled as:

Factor 1: Volition and purposiveness towards nursing older people

Factor 2: The specialism of nursing older people

Factors extracted from KOP and MANOP during the Principal Components Analysis procedure were analysed separately. Repeated measures analysis was used to answer research questions 2 and 3.

#### **4.11 Repeated measures of nursing attitudes towards older people using the single-factor**

##### **KOP scale.**

Nursing students' attitudes towards older people and nursing older people were measured over time to detect any shifts. The datasets were reversed to obtain the summative attitudinal score and the higher the score, the more positive the attitude (Field 2009).

The extracted single-factor from KOP was subjected to a within group, repeated measures t-test (Pallant 2001). Descriptive statistics for the 11-item KOP scale over the three data collection time points are provided in Table 4.17 below. The individual maximum score for the 11-item factor was 66, the minimum was 11. An attitudinal score of 30 indicated a neutral attitude and higher scores indicated favourable attitudes.



**Table 4.18 Descriptive statistics of the single-factor KOP scale**

Descriptives			Statistic	Std. Error
Time 1 (n=261)	Mean		53.68	.42
kop11item	95% Confidence Interval for Mean	Lower Bound	52.84	
		Upper Bound	54.51	
	5% Trimmed Mean		53.79	
	Median		54.00	
	Variance		34.74	
	Std. Deviation		5.89	
	Minimum		33.00	
	Maximum		66.00	
	Range		33.00	
	Interquartile Range		8.00	
	Skewness		-.42	.17
	Kurtosis		.31	.35
Time 2 (n=239)	Mean		53.23	.57
kop11item	95% Confidence Interval for Mean	Lower Bound	52.01	
		Upper Bound	54.36	
	5% Trimmed Mean		53.87	
	Median		54.00	
	Variance		63.49	
	Std. Deviation		7.97	
	Minimum		28.60	
	Maximum		66.00	
	Range		37.40	
	Interquartile Range		8.00	

	Skewness		-1.16	.17
	Kurtosis		1.79	.35
Time 3 (n=205)	Mean		53.23	.49
kop11item	95% Confidence Interval for Mean	Lower Bound	52.25	
		Upper Bound	54.22	
	5% Trimmed Mean		53.63	
	Median		54.00	
	Variance		47.93	
	Std. Deviation		6.92	
	Minimum		29.00	
	Maximum		66.00	
	Range		37.00	
	Interquartile Range		9.00	
	Skewness		-.89	.17
	Kurtosis		1.25	.35

The mean scores from the single-factor KOP scale shown in Table 4.17 suggest that nursing students held positive attitudes towards older people across all time points (Time 1:  $M = 53.68$ ,  $SD = 5.89$ ; Time 2:  $M = 53.23$ ,  $SD = 7.97$ ; Time 3:  $M = 53.23$ ,  $SD = 6.92$ ).

#### 4.11.1 Testing assumptions of the KOP scale

##### *i. Outliers in the data*

Box plots created to scrutinise the data found one outlier. Case number 154, was not attributed to a data input error and was, as Field (2016, p 5) describes “mild” because it was within the interquartile range. The outlier was retained because it was consistent across all

time points and was judged to be representative of the nursing student population (Orr et al 1991, cited in Osborne and Overbay 2004)

*ii. Normal distribution of the data*

Data were tested for normality and Table 4.18 below shows that the Shapiro-Wilk statistics are significant at  $p = .005$  at Time 1 and  $p < .005$  at Time 2 and Time 3. The Kolmogorov-Smirnov statistics are all significant at  $p < .005$ . The null hypothesis that data from the 11-item KOP are normally distributed was rejected.

**Table 4.19 Tests for normal distribution of the 11-item KOP scale**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
t1kop11item	.103	193	.000	.979	193	.005
t2kop11item	.130	193	.000	.911	193	.000
t3kop11item	.082	193	.003	.952	193	.000

a. Lilliefors Significance Correction

#### **4.11.2 Paired t testing of the 11-item KOP scale across Time 1, 2 and 3**

A paired-samples t-test determined whether there was a statistically significant mean difference between nursing attitudes towards older people using the 11-item KOP scale between Time 1, Time 2 and Time 3. One outlier was detected, inspection of the values across the three data collection points revealed them as consistent and not extreme and Case 154 was retained for the analysis. The assumption of normality was violated, as assessed by Shapiro-Wilk's test, but a parametric test was used because the sample size was large enough.

*i. Time 1 to Time 2, 11-item KOP scale*

Nursing students between Time 1 ( $M = 53.68$ ,  $SD = 5.89$ ) and Time 2 ( $M = 53.23$ ,  $SD = 7.97$ ) did not differ significantly in their attitudes towards older people,  $t(1) = .75$ ,  $p = .45$ .

*ii. Time 2 to Time 3, 11-item KOP scale*

Nursing students between Time 2 ( $M = 53.23$ ,  $SD = 7.97$ ) and Time 3 ( $M = 53.23$ ,  $SD = 6.92$ ) did not differ significantly in their attitudes towards older people,  $t(1) = -.009$ ,  $p = .99$ .

*iii. Time 1 to Time 3, 11-item KOP scale*

Nursing students between Time 1 ( $M = 53.68$ ,  $SD = 5.89$ ) and Time 3 ( $M = 53.23$ ,  $SD = 6.92$ ) did not differ significantly in their attitudes towards older people,  $t(1) = .87$ ,  $p = .38$ .

No significant change was detected in nursing students' attitudes towards older people over time using the 11-item KOP scale. The null hypothesis that there would be no difference in attitudes over time was retained.

#### **4.12 Repeated measures of nursing attitudes towards nursing older people using the**

##### **two- factor MANOP scale**

Nursing students' attitudes towards nursing older people were measured using the two factors extracted from MANOP. Factor 1 had seven extracted items, labelled "volition and purposiveness towards nursing older people". Factor 2 had five items and was labelled as "the specialism of nursing older people". Item responses to both factors were subjected, separately, to a within group, repeated measures t-test to detect any attitude changes over time.

#### 4.12.1 Repeated measures using Factor 1 of the MANOP scale

Descriptive statistics for Factor 1 over the three data collection time points are provided in Table 4.19 below. The maximum score for the scale was 42 and the minimum was 7. An attitudinal score of 18 using the 7-item factor indicated a neutral attitude. Higher scores indicated favourable attitudes towards the “volition and purposefulness of nursing older people”

**Table 4.20 Descriptive statistics for Factor 1 of the MANOP scale**

<u>Descriptives</u>			Statistic	Std. Error
Time 1 (n=261)	Mean		26.90	.41
manop_f1_7item	95% Confidence Interval for Mean	Lower Bound	26.09	
		Upper Bound	27.72	
	5% Trimmed Mean		27.13	
	Median		27.00	
	Variance		33.01	
	Std. Deviation		5.75	
	Minimum		9.00	
	Maximum		37.30	
	Range		28.30	
	Interquartile Range		7.89	
	Skewness		-.49	.17
	Kurtosis		-.08	.35
Time 2 (n=239)	Mean		26.42	.41
manop_f1_7item	95% Confidence Interval for Mean	Lower Bound	25.60	
		Upper Bound	27.24	
	5% Trimmed Mean		26.40	

	Median		26.00	
	Variance		33.31	
	Std. Deviation		5.77	
	Minimum		11.00	
	Maximum		42.00	
	Range		31.00	
	Interquartile Range		8.50	
	Skewness		-.00	.17
	Kurtosis		-.19	.35
Time 3 (n=205)	Mean		26.23	.42
manop_f1_7item	95% Confidence Interval for Mean		Lower Bound	25.40
			Upper Bound	27.06
	5% Trimmed Mean			26.42
	Median			27.00
	Variance			34.18
	Std. Deviation			5.85
	Minimum			8.00
	Maximum			38.00
	Range			30.00
	Interquartile Range			8.00
	Skewness		-.48	.17
	Kurtosis		-.01	.35

The mean scores from the 7-item factor suggest that nursing students held positive attitudes towards nursing older people across all time points. (Time 1:  $M = 26.09$ ,  $SD = 5.75$ ; Time 2:  $M = 26.42$ ,  $SD = 5.77$ ; Time 3:  $M = 26.22$ ,  $SD = 5.85$ ). Paired T-tests were undertaken to determine

if there were any significant changes in nursing students' attitudes over time. Assumptions of the data were checked for suitability to run the paired testing analysis.

#### 4.12.2 Testing assumptions of Factor 1 of the MANOP scale

##### *i. Outliers in the data*

No outliers were found in the data

##### *ii. Normal distribution of the data*

Data were tested for normality and Table 4.20 below shows that the Shapiro-Wilk statistics are significant at  $p < .005$  at Time 1 and Time 3 but Time 2 is not significant,  $p = .36$ . The Kolmogorov-Smirnov statistics are significant at Time 3,  $p < .005$  and at Time 1,  $p = .03$  and Time 2,  $p = .02$ . The null hypothesis that data from Factor 1 are normally distributed was retained for Time 2 based on the Shapiro-Wilks statistic and the population size.

**Table 4.21 Tests for normal distribution of Factor 1 of the MANOP scale**

	Tests of Normality					
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
t1manop_f1_7item	.068	193	.031	.975	193	.001
t2manop_f1_7item	.071	193	.018	.992	193	.361
t3manop_f1_7item	.101	193	.000	.978	193	.004

a. Lilliefors Significance Correction

#### 4.12.3 Paired t-testing of Factor 1 of the MANOP scale across Time 1, Time 2 and Time 3

A paired-samples t-test determined whether there was a statistically significant mean difference between nursing students' attitudes towards nursing older people using the seven-

item Factor 1 of the MANOP scale between Time 1, Time 2 and Time 3. No outliers were detected. The assumption of normality was violated at Time 1 and Time 3, as assessed by Shapiro-Wilk's test, but a parametric test was used because of the sample size and the normal distribution at Time 2.

*i. Time 1 to Time 2, Factor 1 MANOP scale*

Nursing students between Time 1 ( $M = 26.90$ ,  $SD = 5.75$ ) and Time 2 ( $M = 26.42$ ,  $SD = 5.77$ ) did not differ significantly in their attitudes towards nursing older people,  $t(1) = 1.13$ ,  $p = .26$ .

*ii. Time 2 to Time 3, Factor 1 MANOP scale*

Nursing students between Time 2 ( $M = 26.42$ ,  $SD = 5.77$ ) and Time 3 ( $M = 26.22$ ,  $SD = 5.85$ ) did not differ significantly in their attitudes towards nursing older people,  $t(1) = .45$ ,  $p = .65$ .

*iii. Time 1 to Time 3, Factor 1 MANOP scale*

Nursing students between Time 1 ( $M = 26.90$ ,  $SD = 5.75$ ) and Time 3 ( $M = 26.22$ ,  $SD = 5.85$ ) did not differ significantly in their attitudes towards nursing older people,  $t(1) = 1.95$ ,  $p = .053$ .

No significant change was detected in nursing students' attitudes towards nursing older people over time using Factor 1 from the MANOP scale and the null hypothesis that there would be no difference in attitudes was retained. The second extracted factor from the original MANOP scale was subjected to the same analytic processes.

#### **4.12.4 Repeated measures using Factor 2 of the MANOP scale**

Descriptive statistics were run on item responses to the 5- item factor, labelled "the specialism of nursing older people". Findings from data at all time points are presented in



Table 4.21 below. The maximum score for the scale was 30 and the minimum 6. An attitudinal score of 12 from the 5-item factor indicated a neutral attitude. Higher scores indicated favourable attitudes towards the “specialism of nursing older people”

**Table 4.22 Descriptive statistics for Factor 2 of the MANOP scale**

<u>Descriptives</u>				
	Mean		Statistic	Std. Error
Time 1 (n=261)			25.75	.22
manop_f2_5item	95% Confidence Interval for Mean			
		Lower Bound	25.31	
		Upper Bound	26.19	
	5% Trimmed Mean		25.94	
	Median		26.00	
	Variance		9.72	
	Std. Deviation		3.12	
	Minimum		16.00	
	Maximum		30.00	
	Range		14.00	
	Interquartile Range		4.00	
	Skewness		-.84	.17
	Kurtosis		.36	.35
Time 2 (n=239)	Mean		25.71	.25
manop_f2_5item	95% Confidence Interval for Mean			
		Lower Bound	25.22	
		Upper Bound	26.20	
	5% Trimmed Mean		26.01	
	Median		26.00	
	Variance		11.87	
	Std. Deviation		3.45	
	Minimum		9.00	

	Maximum		30.00	
	Range		21.00	
	Interquartile Range		4.00	
	Skewness		-1.62	.17
	Kurtosis		4.79	.35
Time 3 (n=205)	Mean		25.52	.24
manop_f2_5item	95% Confidence Interval for Mean	Lower Bound	25.04	
		Upper Bound	25.99	
	5% Trimmed Mean		25.79	
	Median		26.00	
	Variance		11.15	
	Std. Deviation		3.34	
	Minimum		11.00	
	Maximum		30.00	
	Range		19.00	
	Interquartile Range		4.00	
	Skewness		-1.345	.17
	Kurtosis		2.81	.35

The mean scores from the 5-item factor shown in Table 4.21 suggest that nursing students held positive attitudes towards nursing older people across all time points. (Time 1:  $M = 25.75$ ,  $SD = 3.12$ ; Time 2:  $M = 25.71$ ,  $SD = 3.45$ ; Time 3:  $M = 25.52$ ,  $SD = 3.34$ ). Assumptions of the data were checked for suitability to run the paired testing analysis.

#### 4.12.5 Testing assumptions of Factor 2 of the MANOP scale

##### *i. Outliers in the data*

No outliers were found in the data

ii. *Normal distribution of the data*

Data were tested for normality and Table 4.22 below shows that at Times 1, 2 and 3, the Shapiro-Wilk statistics are significant at  $p < .005$  and the Kolmogorov-Smirnov statistics are significant. The null hypothesis that data from Factor 2 are normally distributed was rejected.

**Table 4.23 Tests for normal distribution of Factor 2 of the MANOP scale**

Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
t1manop_f2_5item	.143	193	.000	.931	193	.000
t2manop_f2_5item	.144	193	.000	.875	193	.000
t3manop_f2_5item	.143	193	.000	.899	193	.000

a. Lilliefors Significance Correction

#### 4.12.6 Paired t-testing of Factor 2 of the MANOP scale across Time 1, Time 2 and Time 3

A paired-samples t-test was used to determine whether there was a statistically significant mean difference between nursing students' attitudes towards nursing older people using the 5-item Factor 2 of the MANOP scale between Time 1, Time 2 and Time 3. No outliers were detected. The assumption of normality was violated at all data collection points, as assessed by Shapiro-Wilk's test, but parametric testing was used because of the larger sample size.

i. *Time 1 to Time 2, Factor 2 MANOP scale*

Nursing students between Time 1 ( $M = 25.745$ ,  $SD = 3.12$ ) and Time 2 ( $M = 25.71$ ,  $SD = 3.45$ ) did not differ significantly in their attitudes towards nursing older people,  $t(1) = .14$ ,  $p = .89$ .

ii. *Time 2 to Time 3, Factor 2 MANOP scale*

Nursing students between Time 2 ( $M = 25.71$ ,  $SD = 3.45$ ) and Time 3 ( $M = 25.52$ ,  $SD = 3.33$ ) did not differ significantly in their attitudes towards nursing older people,  $t(1) = .83$ ,  $p = .406$ .

iii. *Time 1 to Time 3, Factor 2 MANOP scale*

Nursing students between Time 1 ( $M = 25.75$ ,  $SD = 3.12$ ) and Time 3 ( $M = 25.52$ ,  $SD = 3.34$ ) did not differ significantly in their attitudes towards nursing older people,  $t(1) = 1.01$ ,  $p = .314$ .

No significant change was detected in nursing students' attitudes towards nursing older people over time using Factor 2 from the MANOP scale. The null hypothesis that there would be no difference in attitudes was retained.

In answering research questions 2 and 3, no extracted factors from KOP and MANOP demonstrated more sensitivity than any other in detecting attitudinal change in nursing students.

Nursing students' attitudes towards older people using the extracted 11-item factor from the KOP items were positive overall with no significant change over time. Both extracted factors from the original MANOP scale demonstrate that nursing students' attitudes towards nursing older people were also positive and, despite lower mean values at Times 2 and 3 compared to the baseline Time 1 score, their attitudes did not change significantly over time.

#### **4.13 Chapter conclusion**

Kogan's (1961) attitudes towards older people scale (KOP) and McLafferty's (2005; 2007) attitudes towards nursing older people scale (MANOP) were subjected to factor reduction methods. Principal Components Analysis reduced the Kogan's (1961) 34-item scale to a single-factor 11-item scale with a mixture of positive and negative statements. This factor was interpreted and labelled as "stereotypes of older people". The 11-item scale demonstrated satisfactory stability across the data from all three time points.

The psychometric properties of the 30-item MANOP scale provided for the study had not been tested. Screening the data reduced the 30 items to twenty eight. Principal Components Analysis reduced the 28 items to a two-factor solution. Seven items loaded to Component 1 and were interpreted as "volition and purposiveness towards nursing older people". Five items loaded to Component 2 which was labelled "The specialism of nursing older people". Both factors demonstrated at least satisfactory reliability using Cronbach's Alpha coefficients.

Repeated measures using the 11-item factor extracted from KOP across Time 1, Time 2 and Time 3 using paired t-tests found no significant change in nursing students' attitudes towards older people. Similar testing on the two extracted factors from MANOP found no significant change in attitudes towards nursing older people.

The findings from this study and the study limitations are discussed in relation to established research in the next chapter.

## **Chapter 5 Discussion and conclusion**

### **5.1 Introduction**

Chapter 1 provided evidence that healthcare professionals' ageist attitudes and behaviours may contribute to unsatisfactory patient experiences and avoidable harm to older people (Frances 2013a; 2013b; Keogh 2013; Care Quality Commission 2016). Solutions to improve healthcare delivery include recruiting nursing students at the point of registration who demonstrate positive attitudes towards older people and who have the prerequisite skills and knowledge for effective care delivery (RCN 2012b; Francis 2013c; Keogh 2013). However, nursing students may be reluctant to seek employment in clinical areas with high volumes of older patients (RCN 2007; 2011). However, there was limited supporting empirical evidence of nursing students' attitudes towards older people or their attitudes towards older people in a healthcare context. The aim of this study was to inform a gap in the research about whether a general scale to measure attitudes towards older people would have better reliability and sensitivity to measure and detect attitudinal change than a healthcare contextual scale. There was little UK-based information relating to the psychometric properties of either scale when tested with nursing students and therefore, little robust evidence of the effect of clinical placement on nursing students' attitudes towards older people and nursing older people.

The study design used nursing students to test the factor structures and psychometric properties of Kogan's (1961) 34-item Attitudes towards Older People (KOP) and McLafferty's (2005) 30-item Attitudes towards Nursing Older People (MANOP). Repeated testing using extracted factors from the scales measured any change in nursing students' attitudes towards older people and nursing older people over three time points during an academic year.

This chapter reviews and discusses the main findings from the study including comparisons with findings from previous research, including studies undertaken since the data collection for this study. The strengths and limitations of the research study are appraised and the chapter concludes with a discussion of the implications from the research findings and recommendations for further research. The chapter begins with a discussion relating to the generalisability of the findings.

## **5.2 Generalisability of the study findings**

This study was conducted in a single Higher Education Institute over two campuses with a convenience sample using three consecutive cohorts of year 1 nursing students. The findings may not be generalisable to other nursing students as Polit & Beck (2010) advise caution when generalising findings from convenience samples. Initially, the potential study population (N = 530) represented national average demographics for nursing students, relating to gender and age. The majority were female (n = 476, 89.9%) which reflected the average gender split of nursing students throughout the UK of 89/11% (Royal College of Nursing 2009). Most participants were aged between 18 and 29 years (n=391, 73.7%) and representative of the national average of 71.9 % (Student Awards Agency for Scotland (SAAS) 2014). Chi- squared testing, at Time 1, of association between demographic variables and return rate found no significant association between gender and age. However, the demographic variables of students who responded to the study at Time 1 differed from the national population. Males who responded were marginally over represented at n = 33 (12.3% of the responding population). The representation of younger students, aged between 18 and 29 years in the study population was n = 186 (69.4%) which is slightly lower than the national average. There

was a significant difference in return rates according to campus attended. Nursing students attending the main campus were more likely to return a questionnaire. Return rates may have been influenced by personal knowledge of the researcher and because of this, there is a potential for response bias.

The overall return rate of (n=268) 50.6% at Time 1 was below the median return of 62% for postal return surveys among healthcare workers in the UK, but as an individual professional group, nurses on average have a 50% return rate (Cook 2009). Seven students were removed from the study at Time 1 because of high percentages of missing data. Attrition between Time 1 and Time 2 was n = 23 (8.8%) with n=238 of 261 respondents returning Time 2 survey data. The attrition rate rose to n = 56 students (20.3%) between Time 1 and Time 3 with n=205 of 261 respondents returning data. Between Time 2 and Time 3, n = 33 students did not return questionnaires (13.9%).

Rogelberg & Stanton (2007) and Groves et al (2004) highlight possible bias associated with low response rates, including response bias. In this study, data collection strategies were used to the potential for response bias. Data were collected anonymously to moderate the effects of social response bias (Bowling 2005). Administering the questionnaires during class time and with envelopes for return may have increased the return rate (McColl et al 2009). Therefore, reasons for non-responses were not identified, but Groves et al (2004) suggest that low response rates may be linked to perceptions of salience in non-respondents, i.e. they do not view the topic as personally relevant. This could affect response bias because Mazor et al (2002) found that the higher the appreciation of a topic, the higher the likelihood of responding to a survey. Nursing students who did not appreciate older people may not have



responded to the survey which could influence response bias and reduce the generalisability of the findings.

Rogelberg & Stanton (2007, p198) advocate using an “archival analysis” to compare respondents to non-respondents on variables contained in an archival database. Tables 4.1 and 4.2 in Chapter 4 shows the data relating to respondents and non-respondents. Groves et al (2004) suggest that demographic differences tend to be minimal between respondents and non-respondents and are only of real concern if the survey questions relate specifically to the demographic e.g. gender, which this study did not. Nevertheless, smaller data samples decrease statistical rigour and may limit the types of statistical techniques that can effectively be applied (Rogelberg & Stanton 2007). However, the study sample at n=261 met Tabachnick & Fidell’s (2007) recommended population size to undertake the analyses needed to answer the first research question.

### **5.3 Summary of the results from testing the psychometric properties of KOP**

Undertaking Principal Components Analysis on Kogan’s (1961) KOP scale extracted a single-factor 11-item scale which was labelled as “stereotypes of older people”. The factor comprised eight negatively and three positively worded items and met Tabachnick & Fidell’s (2007) standards for internal reliability and factor stability over time. This study found that the single-factor structure did not support Kogan’s (1961) two-factor structure of (older people positive) OP+ and (older people negative) OP- factors.

In the extracted 11-item scale, only two paired statements from the original KOP scale were retained from the a priori clustering by Kogan (1961, p 45) of “Qualities of older people with respect to personal appearance and personality”.

item 59 *Most old people are irritable, grouchy, and unpleasant*

with

item 61 *Most old people are cheerful, agreeable, and good humoured,*

item 55 *Most old people should be more concerned with their personal appearance, they're too untidy*

with

item 57 *Most old people seem quite clean and neat in their personal appearance.*

None of the remaining items reflected Kogan's (1961) matched pairs in his scale development or any of his a priori clusters which could suggest that in this study population, Kogan's predictions do not have strong content validity.

#### **5.4 Results from testing the KOP scale in relation to previous research.**

This study did not extract the same factor solution as five of the six studies discussed in Chapter 2. These studies confirmed Kogan's suggested two-factor structure of “prejudice” and “appreciation” when using translated versions of Kogan's (1961) scale (Yen et al 2009; Kucukguclu et al 2011; Erdimer et al 2011; Matarese 2012, Rejeh et al 2012).

Differences found in the psychometric properties of KOP between studies, including this one, may be partly explained by variations in the research designs. This study, unlike Erdimer et al (2011), Kucukguclu et al (2011), Rejeh et al (2012) and Matarese et al (2012) accepted

Tabachnick & Fidell's (2007) recommended factor loadings of  $\geq .4$ . The other studies accepted lower factor loadings for items which would have influenced how the factors were extracted. Furthermore, Zygmunt & Smith (2014) suggest that, because item wording in translated scales may be simplified, the items loading to each component could be different from the original version (see Table 2.1). This study was a closer replication of Kogan's original study than previous research. The scale was not translated or altered, items were interspersed with items from another scale as were Kogan's (1961) scale items and like Kogan (1961), no neutral option was offered. Missing data were dealt with differently in this study from Kogan (1961) and other research studies; missing data were imputed using ipsative means and not attributed a neutral value.

Findings from testing the psychometric properties of Kogan's (1961) KOP scale in this study suggest that, in its current 34-item form, it does not have content validity for UK nursing students. However, this cannot be confirmed without further testing with a similar study population.

## **5.5 Summary of the results from testing the psychometric properties of MANOP**

To answer research question 1, Principal Components Analysis on the 28 items from the original 30-item MANOP scale extracted a 12-item two-factor solution. All negatively worded items from MANOP were dropped during factor reduction because they did not load to any component at  $\geq .4$ . Six items of the first 7-item factor extracted in this study reflected the strongest factor loadings from Factor 1 of McLafferty's (2007) original psychometric testing, which she labelled "looking after older adults". The 7-item factor extracted in this study was interpreted and labelled as "volition and purposiveness towards nursing older people". The

second component extracted, a 5-item factor, did not resemble McLafferty's (2007) original factor loadings and was interpreted and labelled "the specialism of nursing older people".

The 7-item factor met Tabachnick & Fidell (2007) recommended values for satisfactory reliability. Cronbach's Alpha values ranged from .71 to .73. Component 2 with 5 items had less robust reliability with alpha values ranging from .67 to .54. The lower reliability at Time 1 may reflect tensions identified by Oppenheim (2000) because the scale was tested with some nursing students who had no experience of theory or practice relating to older people.

Two items were dropped during the screening of data for data missing at random and not at random. Despite McLafferty's (2007) original scale items being generated from focus group data, Item 11 *Older people are cantankerous*, may not have cultural relevance for all nursing students (MColl et al 1999; Leung 2001). The item response ratio of 85.4/14.6 of nursing students who strongly agreed with Item 21 *Patience is important no matter where you nurse* may have been responding with perceptions of socially acceptable answers (Bowling 2005). The Royal College of Nursing (2015) in their exploration with registered nurses of the attributes of excellent care delivery for older people identified that patience is a desirable interpersonal skill. To improve the content validity of MANOP, "patience" could have been explored specifically in relation to nursing older people. Both these items which were dropped from the study could be revised for any future testing of the psychometric properties of MANOP.

## **5.6 Results from testing the MANOP scale in relation to previous research**

There are no comparative studies with which to compare the results from this research or to establish convergent validity of this 30-item MANOP scale. McLafferty's (2005) study tested a 36-item scale and subsequent studies (McLafferty 2007; Deltsidou et al 2010) used a 20-

item scale Neither scale had been subjected to psychometric testing or had been used to measure nursing students' attitudes over time.

Conjecture that a general attitudinal measure towards older people such as Kogan's (1961) scale may not have relevance in research into attitudes towards nursing older people, has emerged in the literature. Two UK-based scales contextualised for nursing have been developed since McLafferty's original (2005) study (Nolan et al 2006; Kydd & Wild 2013; Kydd et al 2013).

Nolan et al's (2006) Perceptions of Working with Older People questionnaire was developed for nursing students using focus group data. Kydd & Wild's (2013) Multifactorial Attitudes Questionnaire (MAQ) was developed for nurses from a review of the literature and not from qualitative data collection methods as would be advised by Oppenheim (2000). There are no details relating to establishing face or content validity. Nonetheless, the tensions appraised in Chapter 1 are evident in the item development of both scales. For example, both scales have items relating to the professional status of older people care, career potential, the skills and specialism associated with nursing older people and a lack of technical care. Both the Nolan (2006) and Kydd & Wild (2013) scales focused on attitudes towards the professional issues associated with older people's nursing rather than attitudes towards the professionals and patients associated with nursing older people. McLafferty's scale items relate to perceptions of older patients, registered nurses who work with older people, plus perceptions of lecturers and nursing students within a nursing older people context. Kydd & Wild (2013) include the learning environment as an a priori category but, like previous research studies, they treated the clinical area as the learning environment (Haight et al 1994; Sheffler 1998; Rosher & Robinson 2005; Ryan et al 2007). Neither Nolan's (2006)

nor Kydd & Wild's (2013) scale includes any items relating to the influence of higher education or people who work in higher education.

Neither Nolan's (2006) nor Kydd's (2013) scales have been published in a test-retest context to measure change in nursing attitudes. Therefore, no inferences can be made about their reliability or sensitivity to capture attitudinal change (Cook & Beckman 2006). No comparisons can be made with MANOP and so the convergent validity of MANOP cannot be established. No other healthcare contextual scales were found which could be compared to MANOP.

Like the psychometric testing of Kogan's (1961) scale, there are doubts relating to the generalisability of the findings from MANOP's factor reduction. The choice to exclude a neutral option is discussed more fully under limitations of the study, but using a neutral option may have found a different factor extraction from MANOP using nursing students with no experience of nursing older people. To answer research question 1 with confidence, the scale should be subjected to further psychometric testing.

To answer research questions 2 and 3, the extracted factors from both scales underwent paired t-tests between Time1 and Time 2, Time 2 and time 3 and Time 1 and Time 3. Findings are discussed below.

### **5.7 Sensitivity of the 11-item scale extracted from Kogan's (1961) scale**

Testing the 11-item scale extracted from Kogan's (1961) 34-item scale using paired t-testing over the three time points described above, found no significant change in nursing students' attitudes towards what this study labelled "stereotypes of older people". The null hypothesis that there would be no change in nursing students' attitudes towards older people over time

was retained. Mean scores at all time points were above the scale's neutral mean of 38: Time 1 ( $M = 53.68, SD = 5.89$ ), Time 2 ( $M = 53.23, SD = 7.97$ ), Time 3 ( $M = 53.23, SD = 6.92$ ). These findings show that nursing students held positive attitudes at all time points and either there was no change in nursing students' attitudes over time, or the extracted 11-item factor lacked the sensitivity to detect any attitudinal change.

### **5.8 Sensitivity of the two-factor 12-item scale extracted from McLafferty's (2005) scale**

The 7-item factor "volition and purposiveness towards nursing older people" and the 5-item factor "the specialism of nursing older people" were tested separately using paired t-tests over the three time points and no significant change in nursing students' attitudes were detected by either factor. The null hypothesis that there would be no change in nursing students' attitudes over time was retained.

Nursing students' attitudes towards "volition and purposiveness towards nursing older people" were positive and the mean scores for the 7-item factor across time were just above the neutral mean of 25: Time 1 ( $M = 26.90, SD = 5.75$ ), Time 2 ( $M = 26.42, SD = 5.77$ ), Time 3 ( $M = 26.22, SD = 5.85$ ). Likewise, their attitudes using the 5-item "the specialism of nursing older people" were positive. Mean scores at all time points were above the neutral mean of 18: Time 1 ( $M = 25.75, SD = 3.12$ ), Time 2 ( $M = 25.71, SD = 3.446$ ), Time 3 ( $M = 25.51, SD = 3.34$ ). Nursing students' attitudes towards nursing older people over time either did not change significantly, or the measures were not sensitive enough to detect attitudinal changes.

### **5.9 General findings in relation to previous research.**

The major similarity between this study and other primary research studies (see Table 2.2 in Chapter 2 and Appendix II) was that all studies align in findings that nursing students' attitudes towards older people are positive. Only three studies used a longitudinal design, two of which were appraised in Chapter 2 (Haight et al 1994; Ryan et al 2007). A more recent study by Bleijenberg et al (2012), a study in Holland used a translated version (Flemish) of Kogan's (1961) scale and the Aging Semantic Differential scale (ASD) (Rosencranz & McNevin 1969 cited in Bleijenberg et al 2012), to compare attitudes towards older people with knowledge using Palmore's (1977) Facts On Ageing Quiz and nursing students' intentions to work with older people. Bleijenberg et al 2012 who found attitudes using the translated KOP scale went from neutral in Year 1 to positive by Year 3, but they used a higher neutral point (n=136) than other studies (n=102). There were no correlations between knowledge and attitudes or between attitudes towards older people and intentions to work with older people. Liu et al (2013) in their systematic review of (N= 25) English and Chinese speaking studies, of which fourteen included nursing students as all or part of the research population also found no correlation between demographic variables and attitudes towards older people. Their study converted scores from each scale used into percentages according to the number of Likert scale options (Liu et al 2013). Scales used included Palmore (1977) FAQ (n= 7 studies), McLafferty & Morrison (2004) MANOP, (n=1 study) Kogan (1961) KOP (n=15 studies) and Nolan et al (2001) Perceptions of Working with Older People (n=1 study). Liu's findings suggest that although attitudes are consistently positive, they have become less positive over the period of time during which the studies in the review were published (Liu et al 2013). The significance of any differences in attitudes between studies was not reported by Liu et al (2013) and because these studies originated in different countries and languages, longitudinal trends cannot be concluded. The majority (n=21) of the studies in Liu et al's



(2013) review were cross-sectional or single pre-post test populations (n=2); because Liu et al's (2013) review was not primary research, it was difficult to distinguish findings relating to student nurse populations from those of registered nurses and other healthcare professionals. So, although Lui et al (2013) findings were similar to those of the primary research studies included in Chapter 2, they are not directly comparable to this study. There were no published studies found that measured nursing students' attitudes over a single academic year with which to compare the findings from this study. As identified in the preceding sections, no significant change was detected in nursing students' attitudes over time. The research questions do not facilitate further exploration of the data to provide an explanation. Kogan (1979) suggested that healthcare workers' attitudes towards older people may be fixed before they encounter older people in a healthcare context. This may be particularly relevant for nursing students who may have pre-formed attitudes during pre-nursing experiences of delivering health or social care with older people. For those participants the Time 1 is not a true representation of baseline attitudes towards older people or nursing older people.

Attitudes formed through primary socialisation that nursing students hold at the start of a nursing programme could be changed by secondary socialisation through role modelling and education (Eagly & Chaiken 1993). At the time data were collected, focused education relating to nursing older people was not delivered until Year 2 and measuring attitudes across Year 1 may not have allowed for the knowledge and skills acquisition that is associated with attitudinal change (Eagly 1992). As discussed in Chapter 2, no published study has explored the impact of theoretical education on nursing student's attitudes towards older people or nursing older people but theoretical education in other branches of nursing, for example

mental health nursing, has been found to improve attitudes and is more important than the literature may suggest (Happell 2009; Happell & Gaskin 2012).

The study design and timing of the data collection may have limited the detection of significant change in nursing students' attitudes towards older people or nursing older people. The nursing student population in this study may not have been socialised into the difficult clinical context reflected in Chapter 1 and this is discussed more fully in Section 5.11, Limitations of the Study.

Previous studies using Kogan's (1961) scale as a pre-post test measure of attitudes after a clinical educational intervention, also had inconsistent findings. Haight et al (1994) and Sheffler (1998) found a significant improvement in attitudes towards older people while Ryan et al (2007) found that attitudes improved but not significantly. All studies administered Kogan's scale in its entirety and therefore findings cannot be compared to this study which tested the extracted factors from KOP (Kogan 1961) over time. Additionally, there are no studies which use MANOP (McLafferty 2005) over time and therefore it is not possible to make comparisons with other studies about the sensitivity of the instruments.

Similarly to the studies reviewed in Chapter 2, this study found that nursing students hold positive attitudes towards older people but generally there is no consensus between studies relating to demographic variables such as age and gender. Countries such as Turkey, Malawi and Israel who have increasingly older populations used cross-sectional studies to measure nursing students' attitudes (Ayoglu et al 2013; Zverev 2013; Natan et al 2015). Recent studies from Holland, Turkey and Israel have used KOP to compare attitudes towards older people with career intentions (Bleijenberg et al 2012; Ayoglu et al 2013; Natan 2015). Findings are

consistent in that there is no direct correlation between positive attitudinal scores towards older people using Kogan's (1961) scale and intentions to work with older people.

Using KOP in its current form as a general measure towards older people with which to associate career intentions, may not produce reliable results. KOP may not have sufficient content validity or sensitivity to distinguish between attitudes towards older people and attitudes towards nursing older people as patients. It is an omission in this study that career intentions were not explored, but at the time of the design, this was phase 1 of a larger study and career intentions were not a focus. Other limitations and strengths of this study are discussed in the next sections.

### **5.10 Strengths of the study**

This is the first study to compare a general attitudinal measure towards older people, with a measure of attitudes towards nursing older patients and these results describe for the first time, the findings from psychometric testing of KOP in the UK. Findings from this study suggest that KOP in its original scale construct, may not be suitable for use with nursing students in the UK. The factor reduction methods used in this study did not produce the matched opposite scales "prejudice" and "appreciation" suggested by Kogan (1961; 1978) and accepted by other studies.

Pre-analysis data management strategies described in this study were more robust than reported by other studies which tested KOP. A priori targets for missing data were set to guide decisions about item and case inclusion in the analysis. Missing data was managed either by eliminating items from data not missing at random (Graham 2009) or substituting with the

ipsative mean for missing data (Downey & King 1998; Imai 2014). Therefore, Karahalious et al (2012) would suggest that the analytic findings from this study may have stronger statistical rigour; findings from this study may be more valid than the other studies who did not report managing missing data (Graham 2009).

### **5.11 Limits of the study**

A significant limitation of this study is that research question 1 was not answered in full. Ethical permission to proceed was granted when the study was part of a larger study. The discriminant validity of both scales was not explored because findings from testing the psychometric properties of Kogan's (1961) and McLafferty's (2005) scales would have been used in the second phase of the larger study. Had a variable been introduced into this study relating to nursing students' intentions to work with older people, discriminant validity could have been tested.

Limits to the study also relate to the decision to omit a neutral point from MANOP which may have affected the factors extracted from MANOP and the subsequent use of the extracted factors to measure students' attitudes over time. The aim of removing the neutral option was to reduce number of people who falsely reported "no opinion" (Krosnick 2002; Krosnick et al 2002; Stocke 2007). The validity of Likert scale responses can be compromised by social desirability bias (Stocke 2007) where participants may avoid answering a question honestly if they perceive that their true responses may not adhere to what they view as politically correct responses (Krosnick 2002). As discussed under Section 5.2, procedures were used to assure students of anonymity and the survey was self-completed (Bowling 2005). No additional interventions were employed, for example introducing items to identify social

desirability bias or asking the participants to complete a second social desirability scale (Krosnick 2002) and therefore assumptions relating to social desirability bias were untested. The nursing students may have responded to the scale items to demonstrate more favourable attitudes than they actually held, therefore the possibility that the scales are affected by social desirability bias cannot be ruled out.

The study was designed to measure nursing students' attitudes before exposure to education or clinical practice relating to older people. However, on reflection, McLafferty (2007) had tested the psychometric properties of MANOP on nursing students who had experience of older people nursing and it is possible that, at baseline, some of the students in this study had genuinely not formed attitudes towards nursing older people. Had a neutral option been available, there may have been a measurable attitude change over time. The analysis from MANOP cannot therefore be generalised because of this potential measurement error. Repeating the study to test the psychometric properties of MANOP with a neutral option may produce more robust findings to answer all three research questions.

Findings from this study may not be representative of nursing students' attitudes in the current health care climate. Data were collected from 2008-2010 from nursing students and this period was before nursing students experienced any local operationalisation of changing health policy and strategic responses to the Francis report (2013 c). Chapter 1 outlined the tensions relating to healthcare delivery, in particular the effect of increasing numbers of older people who are more acutely ill and who have increasingly complex healthcare needs. Chapter 1 also showed that despite interventions to enhance care for older people, clinicians may hold poor attitudes towards older people in healthcare and nursing students who engage with poor cultures of care could adopt similar attitudes and behaviours. Collecting data

before this period using both Kogan's (1961) and McLafferty's (2005) scale may not have captured nursing students' attitudes in this increasingly difficult healthcare context.

It is however possible that the nursing students' attitudes did change over time but the measures extracted through factor reduction lacked the sensitivity to detect change. If this is the case, this is an important limitation of the study because measures that have weak sensitivity to change would have reduced power should these scales be used to measure change in an intervention study (Fok & Henry 2015). The factor analysis supported the construct validity of the factors extracted from both instruments but to a limited degree. The 11-item single factor from KOP and the two Factors extracted from MANOP had varying degrees of acceptable to good internal reliability, however the solutions from the Principal Components Analysis (PCA) of both measures explained less than the recommended 50% of the variance (Tabachnick & Fidell (2007). The number of items extracted may not have covered the full range of the latent construct being measured reducing the scales' sensitivity to attitudinal changes over time (Fok & Henry 2015). The number of factors extracted were guided by the Scree plot (Ferguson & Cox 1993) and the PCA process should have eliminated redundant items. The factor solutions could be confirmed through Confirmatory Factor Analysis which is discussed in Section 5.13. The measures' sensitivity to change could also have been affected by how the meaning of questions were interpreted in the self-completion questionnaire as could the influence of social desirability bias (Krosnick 2002; Fok & Henry 2015). To be assured of the sensitivity to change of the measure, Fok & Henry (2015) suggest introducing items that ask directly about change in future research.

## **5.12 Implications of the study results**

This study contributes to the development of research into nursing students' attitudes towards nursing older people because the results suggest that KOP may not be the most robust measure to use. Much of the research to date which measures nursing students' attitudes towards older people provides empirical data, but while some research to date has attempted to make associations between variables which affect attitudes towards older people and perceptions of nursing older people using KOP, it is still not clear what influences nursing students' attitudes towards nursing older people, or whether attitudes are sustained.

### **5.13 Recommendations for further research**

The findings from this study suggest that Kogan's (1961) scale may not be valid or reliable for use with nursing students in a UK healthcare context. To confirm findings, Kogan's (1961) scale requires further testing with nursing students across more than one Higher Education Institute. Further testing of MANOP is also required before the scale could be used to inform the knowledge base relating to nursing students' attitudes towards nursing older people.

KOP (Kogan 1961) and MANOP (McLafferty 2005) should also be tested further for discriminant validity by introducing a variable that measures nursing students' future intentions to nurse older people. A revised MANOP scale with amended item wording and a neutral option could be administered to a contemporary nursing student population to retest the scale reliability and sensitivity. Although there are no comparative attitudinal scales with which to confirm convergent validity, the MANOP scale could be administered in a study to compare the psychometrics and sensitivity to attitudinal change with the more recent MAQ scale (Kydd & Wild 2013). If proven valid and reliable, McLafferty's (2005) scale could be used to further inform research into nursing students' attitudes towards nursing older people.

This study presents the findings from using Principal Components Analysis to explore the underlying factor structures of both scales. Any further testing of Kogan's (1961) scale and McLafferty's (2007) scale should include using Confirmatory Factor Analysis (CFA) to verify the factor structure (Field 2009). The factors extracted from the PCA provide the a priori factor structure i.e. the number of factors required in the data with an expectation of which items would be expected to load onto the factors. In further research using KOP and MANOP, subjecting the data to CFA, would confirm or reject findings from this exploratory analysis that a relationship between observed variables and their underlying latent constructs exists (Tabachnik & Fidel 2007). Although the approaches to PCA and CFA are similar, CFA facilitates testing and possibly confirming theory in different contexts (Kline 2000), for example nursing students across more than one data collection site or testing the scales with Registered Nurses. The process of CFA requires confirmation of factor structures by accepting more stringent loading values ( $\geq .6$ ) than PCA to reflect the degree to which each item is linked to a factor (Leach 2008). Further analytic processes employ fit indices, including chi-square, to assess the adequacy of the hypothesized measurement model's consistency with the observed data. (Kline 2000; Leach 2008). Testing of KOP (Kogan 1961) and MANOP (McLafferty 2005) using CFA could be useful in developing theory relating attitude measurement towards older people and nursing older people in future research.

The findings from this study do not enable any analysis of the influence of clinical practice of focused higher education strategies on nursing students' attitudes and there is no published exploration of causal relationships between theoretical education and attitudes across a nursing programme on nursing students' attitudes. Seminal research has focused on why nursing students do not want to work in older people's care settings (Stevens & Crouch 1992; 1995; Stevens 2011). These studies suggest that older people nursing repels nursing



students, they doubt their own abilities to cope and find the work distressing and boring. However, a solution to add to research evidence relating to influences on nursing students' attitudes towards nursing older people and their intentions to work with older people may be to study nursing students who do intend to nurse older people as this has not been explored. Causal relationships between attitudes and the influencing variables on attitudes could be explored over time. Triangulating a validated attitude measure developed for a healthcare context such as McLafferty's (2005) scale, if validated, with qualitative data from nursing students who intend to nurse older people may inform the development of education and clinical practice placements that could positively influence nursing students' attitudes towards nursing older people and their desire to work in older people care settings.

#### **5.14 Conclusions from the study**

The research questions were answered as fully as possible and findings from this study suggest that nursing students' attitudes towards older people and nursing older people are positive and do not change over time. Principal Components Analysis of Kogan's (1961) attitudes towards older people scale did not extract similar factors compared to other studies and the validity of using KOP in research to measure nursing students' attitudes in a healthcare context requires further confirmation.

The form of the questionnaire presentation of McLafferty's 30-item scale may have contributed to measurement error in the responses to items and affected the results from psychometric testing of the scale. This scale also requires to be retested before being used to measure attitudinal changes towards nursing older people over time. Taking account of the potential measurement error using MANOP and the period of data collection, findings from

this study may not be generalisable across other nursing student populations in this current healthcare context.

Nursing students with positive attitudes need to be recruited into nursing older people (Francis 2013c), but they may be reluctant to pursue such careers. No studies have explored attitudes in relation to why nursing students do want to work with older people. Qualitatively exploring the positive influences over nursing students' attitudes towards nursing older people, triangulated with a healthcare contextual attitudinal scale could be used to further test the validity of McLafferty's (2005) scale. Findings could inform Higher Education Institutions and their NHS partners about how effective undergraduate education could be delivered to nursing students to prepare them for careers nursing older people.

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## Appendix I Glossary of psychometric research and data analysis terms

Terminology	Definition/explanation	Citation(s)
<b>Bartlett's test for sphericity</b>	A test to determine whether the correlation matrices are identity matrices i.e. each variable correlates perfectly with itself ( $r = 1$ ) but are uncorrelated to each other ( $r = 0$ ) and indicates the data set suitability for factor reduction.	Nunnally & Bernstein (1994) Field (2009)
<b>Chi-Square</b>	A statistical measure of significant association between nominal variables	Maltby et al (2007)
<b>Communalities</b>	The sum of the squared factor loadings for all factors for a given variable, is the variance in that variable accounted for by all the factors. Ideally for factor analysis, communalities should be $\geq .6$	
<b>Cronbach's alpha</b>	A measure of the internal reliability of a measurement scale. The alpha coefficient ranges in value from 0 to 1. The higher the alpha value, the more reliable the scale. The minimum acceptable value depending on the number of scale items is $\geq .7$	Tabachnick & Fidell (2007) Kline (2000)
<b>Confounding variable</b>	A characteristic or condition other than the variable being assessed that can affect true findings from analysis	Field (2009)
<b>Content (face) validity</b>	The extent to which a scale measures all elements of a construct	Coolican (2009)
<b>Continuous variable</b>	A variable that may have fractional values, e.g., height, weight and time. Likert scales with $\geq 6$ points can be treated as continuous, but with no specific value attributed to each point on the scale	Field (2009)
<b>Convenience sampling</b>	Non-probability sampling that involves the target population sample being drawn from an available population	Coolican (2009)
<b>Convergent validity</b>	How a measure correlates with other similar or dissimilar measures	Rattray & Jones (2005)
<b>Correlation</b>	The degree of relationship between pairs of interval variables in a sample measured from $-1.0$ to $1.0$	Field (2009)
<b>Correlation matrix</b>	Table showing the inter-correlations among all variables	Field (2009)
<b>Descriptive statistics:</b>	Statistics that describe, organise, and summarise data (frequencies, percentages, descriptions of central tendency and descriptions of relative position)	Maltby et al (2007)
<b>Edumetric</b>	Edumetric is a systematic process of accessing the educational component in a quantitative format such as a scale	Carver (1974) Palmore (1977)
<b>Eigenvalues</b>	The amount of variance accounted for by the variables in a factor. Normally eigenvalues values of at least $1.0$ are used to retain factors.	Bryman & Cramer (2008) Tabachnick & Fidel (2007)
<b>Exploratory Factor Analysis (EFA)</b>	A data reduction method where there is no previous factor structure to prove. EFA uncovers any underlying structure of a large set of variables in a scale	Costello & Osborne (2005) Field (2009)
<b>Factor</b>	Linear combination of the original variables or items on a scale. Factors represent the underlying dimensions (constructs) that summarise or account for the original set of observed variables.	Kline (2000)
<b>Factor analysis</b>	The investigation of relationships between items in an instrument and the constructs they are intended to measure.	Cook & Beckman (2006)
<b>Factor loading</b>	Correlation between a variable and a factor on a component. Squared factor loadings indicate what percentage of the	Ferguson & Cox (1993) Field (2009)

## Appendix I Glossary of psychometric research and data analysis terms

	variance in an original variable is explained by a factor. Acceptable factor loadings reach $\geq .4$	
<b>KMO (Kaiser-Meyer-Olkin)</b>	A measure of sampling adequacy for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. KMO values of $\geq 0.5$ indicate that a factor analysis of the variables is viable	Bryman and Cramer (2008) Field (2009)
<b>Kurtosis</b>	A statistical value that measures how peaked a distribution is. The kurtosis of a normal distribution is 0. If kurtosis is different than 0, then the distribution is either flatter or more peaked than a normal distribution	Field (2009)
<b>Likert Scale</b>	Fixed choice response formats on which survey respondents can indicate their level of agreement or disagreement with a questionnaire item or series of items	Rattray & Jones (2005) Field (2009)
<b>Mean</b>	The average score within a distribution.	Maltby et al (2007)
<b>Measurement Error</b>	The difference between the value measured in a survey or on a test and the true value, due to several causes relating to survey design	(Bowling 2005)
<b>Missing Data Imputation</b>	A method used to fill in missing data at random in surveys.	(Graham 2009) Karahalious et al (2012)
<b>Normal Distribution</b>	A statistical distribution of scale scores which should follow a classic bell-shaped curve and produce a normal distribution for analytic testing	Maltby et al (2007)
<b>N/p ratio</b>	The number of subjects to number of items/variables in the scale which determines suitability of the data for factor analysis	Ferguson & Cox (1993)
<b>Null hypothesis</b>	The hypothesis that one variable has no association with another variable or set of variables.	Pallant (2001)
<b>Ordinal variable</b>	A variable in which the order of data points can be determined but not the mathematical distance between data points	Maltby et al (2007)
<b>Outlier</b>	An observation in a data set with a different value to the other observations. The data point is unusually larger or smaller compared to the other data points	Pallant (2001)
<b>Panel or cohort study</b>	An observational study in which a defined group of people (the cohort) is followed over time.	Coolican (2009)
<b>Principal component analysis (PCA)</b>	A factor reduction procedure with orthogonal transformation to reduce a set of possibly correlated variables into a different set of linearly uncorrelated variables called principal components that can be interpreted meaningfully	Coolican (2009)
<b>Psychometric</b>	The field of study concerned with the theory and technique of psychological measurement	Kogan (1961)
<b>P-value</b>	The $p$ -value reflects the strength of evidence against the null hypothesis. If $p > 0.05$ , the evidence against the null hypothesis is not strong enough, and it can't be rejected.	Goodman (2008)
<b>Reliability</b>	The consistency and dependability of a survey question or set of questions to gather data (see Cronbach's alpha) Reliability indicates the degree to which survey questions will provide the same result over time for the same person, across similar groups, and irrespective of who collects the survey data	Field (2009) Bryman & Cramer (2008)
<b>Rotated component matrix</b>	A presentation of the output of principal components analysis. It contains estimates of the	Field (2009)

## Appendix I Glossary of psychometric research and data analysis terms

	correlations between each of the variables and the estimated components (factor loadings)	
<b>Rotation of factors</b>	A variety of techniques to maximise the loadings of some items onto a factor and/or minimising loadings onto other factors. Oblique rotation relates the factors to each other while orthogonal rotation makes the factors unrelated. Varimax rotation is the most common orthogonal rotation method.	Bryman & Cramer (2008) Field (2009)
<b>Salient Similarity Index</b>	SSI demonstrates whether the factor solutions match i.e. they have the same salient variables and therefore the items have not loaded to the same factor by chance	Cattell & Baggaley (1960) (Cook & Beckman 2006).
<b>Scree Plot</b>	A graphical method for determining how many of the initial factors should be retained for rotation. The eigenvalues are plotted in the sequence of the principal factors. The number of factors is chosen where the plot levels off to a linear decreasing pattern sometimes referred to as the “elbow”	Cattell (1965) Tabachnick & Fidell (2007)
<b>Skewness</b>	The value of a variable’s difference from normal distribution to the left or the right of the bell curve	Field (2001)
<b>Standard deviation (SD)</b>	A statistical measure that describes the extent of data spread of a set of observations. Calculated as the average difference at either side of the mean value in the sample	Pallant (2001)
<b>Statistical Significance</b>	Evidence that a difference probably did not happen by chance (typically ninety-five percent)	Maltby et al (2007)
<b>t-test</b>	A test to determine if the scores of two groups differ significantly on a single variable	Pallant (2001)
<b>Two-tailed (paired) t-test</b>	A hypothesis test in which the values for accepting or rejecting the null hypothesis are found in both tails of the probability distribution. In attitudinal measurement, attitudes can become more negative or more positive so two tailed testing is needed.	Pallant (2001)
<b>Type I error</b>	A false conclusion and the null hypothesis is rejected instead of accepted	(Field 2009)
<b>Type II error</b>	A false conclusion and the null hypothesis is accepted instead of rejected	(Field 2009)
<b>Z Score</b>	A score that is produced by subtracting the mean value from an individual data value and dividing by the standard deviation	Tabachnick & Fidell (2007)

## Appendix II Literature post data collection (2008)

Author(s) Date	Holroyd, A., Dahlke, S., Fehr, C., Jung, P., et al., 2009.	Ayoglu, F. N., Ayyildiz, T.K., Aslan, G.K., Veren, F., 2013.	Natan, M.B., Danino, S., Freundlich, N., Barda, A., Yosef, R.M., 2015.	Bleijenberg, N., Jansen, M.J.M., Schuermans, M.J., 2012	Zverev, Y., 2013
Study aim	To compare nursing student attitudes towards older people at different times during a nursing programme	To evaluate the attitudes of nursing and medical students towards older people	To examine factors related to nursing students' intention to work in geriatrics on graduation.	To investigate Dutch nursing students' knowledge of and attitudes toward older people and their willingness to work with older people over four years	To explore the attitudes of Malawian medical and nursing students towards older people.
Country of origin	Canada	Turkey	Israel	Holland	Malawi
Research method	A comparative cross-sectional study	Cross-sectional survey	Cross sectional descriptive design	A longitudinal cohort study	Cross sectional comparative study
Attitudinal scale(s) used	Adaption of Kogan's (1961) Attitudes Toward Old People 16 paired items (n=32) items scale 5 point Likert scale	Turkish version of Kogan's (1961) Attitudes Toward Old People scale 6 point Likert scale Questions re career intentions	N=61 item combination of Theory of Planned Behaviour scale and Kogan's (1961) attitudes towards older people scale	Palmore's Facts on Aging Quiz. Aging Semantic Differential scale (ASD) Kogan's Attitudes toward Older People scale translated into Flemish (no example)	English version of the Kogan's (1961) Old People Scale (KOP) 6 point Likert scale
Study population	N=197 nursing students Year 1-4	N=618 students Nursing student n=339 female n=273 (80.5%) males n = 66 (19.5%) One University	N=200 nursing students Year 1 from two nursing programmes (n=110) and students from a BN degree programme (n=90)	N = 113 nursing students Year 1 and Year 4 (n=81) One nursing school	N = 154 Medical students Year 1-5 N = 15 nursing students Year 1-4
Data analysis	Analysis of variance (ANOVA), Kruskal-Wallis, t tests, and linear regression.	Kruskal-Wallis variance and Mann-Whitney U test were used for independent samples	Pearson correlations and t tests for independent samples	independent sample t-test Pearson's correlation coefficient	t tests and ANOVA
Findings/results	Students strongly disagreed with "many" negative statements about older adults Attitudes improve with age No significant shift in attitudes over four years Students do not recognise education as exposure to information about older people	All students had positive attitudes but males had significantly more positive attitudes than females as did medical students Students who expressed an interest in working with older people scored significantly higher on the KOP.	Negative intentions to work with older people Positive attitudes towards older people No correlation between intentions and attitudes Intentions based on perceptions of hard work, lack of knowledge and personal doubt of own skills	Nursing students' knowledge slightly improved over 4 years ASD negative to neutral but not significant KOP neutral to positive – significant No correlation between knowledge and attitudes	Students have consistently positive attitudes No significant difference between age, gender, programme or year of study

## Appendix II Literature post data collection (2008)

Comments	<p>No identification of which (n=2) pair of Kogan's statements was dropped, or why.</p> <p>Changed to "attitudes towards the Elderly" no reason provided</p>	<p>Men and those with a religion (opposed to secular) more likely to work with older people</p> <p>Kogan more sensitive to change than TPB scale. Significant positive change</p> <p>Nursing students are taught theory, but usually do not have specialist clinical experience in the nursing older people</p>	<p>Nursing knowledge was under 50% correct in Year 1 and still under 50% in year 4 (although nearer to 50%)</p> <p>53% of Year4 students still preferred not to work with older people</p>	<p>Positive attitudes identified as being due to culture and higher educational levels</p>
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## Appendix II Literature post data collection (2008)

Author(s) Date	Kydd, A., Wild, D., 2013.	Kydd, A., Wild, D., Nelson, S., 2013.	Kydd, A., Touhy, T., Newman, D., Fagerberg, I., et al., 2014	Nolan, M., Brown, J., Davies, S., Nolan, J., et al., 2006
Study aim	Outlines the development of a contextual attitudinal scale to measure attitudes towards older people nursing	To identify and update knowledge of the multiple factors affecting health professionals' attitudes towards nursing older people and towards people who care for older people	To explore the attitudes of nurses and nursing students in Scotland, Sweden and the US towards working with older people.	Report into the AGEIN project for ENB (this study considers the quantitative measure)
Country of origin	UK	UK	Scotland, Sweden US	UK
Research method	Development and update of an attitudinal scale from reviewing the literature to replicate a previous study (unpublished)	Cross-sectional survey comparing the findings from a survey in 1999 (unpublished) with current findings		Cross sectional survey as part of a triangulated study
Attitudinal scale(s) used	Revision of the 20-item Multifactorial Attitudes Questionnaire (MAQ)	20-item MAQ (revised)	20-item MAQ (revised) Translated into Swedish Language checked for understanding in the US	Revision of a 15 item scale (Nolan et al 2001) Perceptions of working with older people 5-point Likert scale
Study population	(See Kydd et al 2013)	2013: N = 544 healthcare professionals: N=169 RN N= 140 HCA N=154 nursing students N=26 AHPs	N = 1,587 nurses and nursing students (no demographic information re split) (Scotland n = 323)	N = 718 Nursing students at the start of Year 1 Nursing students at the start of Year 2
Data analysis	Thematic analysis of the literature	Mann-Whitney U test.	Kruskal-Wallis one-way analysis of variance. Mann-Whitney U with Bonferroni Correction for significant items Confirmatory factor analysis used to assess conformity construct validity	Descriptive statistics
Findings/results	Revision and justification of a 20- item scale (MAQ) with 5 a priori categories 5 point Likert scale	Significantly more participants thought that older people should have access to medical services	CFA obtained an adequate model fit (0.89)	Nursing students have a favourable perceptions of nursing older people.

## Appendix II Literature post data collection (2008)

A priori categories: Ageism Learning environment Working environment Professional esteem Specialist status	No significant change in attitudes towards the learning environment – agreement that education should be provided by specialists Significantly more agreement that working conditions are not conducive to recruiting and retaining staff Less agreement that care is routine No change in professional esteem: low status but disagreement that less talented personnel work in older people care No change in specialist status. Disagreement that specialist training is not needed. No notification of the changes in the MAQ since 1999	Slightly unstable internal reliability (Cronbach's Alpha .61) Scottish participants more strongly agreed than those from Sweden and the US that older people's care is a speciality Similar findings to the 2013 study relating to low status, recruiting and retaining staff. Agreement that career advancement is more difficult if working with older people  MAQ needs further revision to improve reliability.	Older people are interesting to nurse Career opportunities are viewed differently from other studies  Comments Two student populations treated as one and no comparison of perceptions over the academic year. High numbers of neutral responses which were not discussed (n= 10 items had > 20% neutral responses)
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## Appendix III Participation Information Sheet and Consent Form

### STUDY TITLE

Urinary incontinence in older people: Do discrepancies between nursing student and patient perceptions of illness and treatment representations of incontinence arise from nursing student attitudes or the patterns of care provision they witness? (Phase 1)



### INVITATION TO TAKE PART IN A RESEARCH STUDY

My name is Lindsay Dingwall and I am a lecturer in the School of Nursing & Midwifery in the University of Dundee. I am also studying for a PhD which is being supervised by Dr M Jones and Dr I McLafferty who both teach and research in the School.

You are being asked to take part in a research study, which will explore how older people view having urinary incontinence as a condition and how they feel about the treatment they are receiving in the clinical area. Nursing students who are caring for these older people will also be asked about their perceptions of urinary incontinence and the treatment interventions being carried out with these older patients. There may be differences between how older people and nursing students view urinary incontinence and treatment strategies used and I hope to identify what the influencing factors may be.

### PURPOSE OF THE RESEARCH STUDY

This is phase 1 of a two phase study. During this phase, I would like to measure nursing students' attitudes towards older people. I intend to invite all nursing students undertaking the common foundation programme for the first time and who intend to progress onto the adult branch in Year 2 to participate. Nursing students who agree to participate will be given a questionnaire which presents a series of statements relating to older people in general and older people as in-patients. Participants will be asked to indicate whether they agree or disagree with these statements from six choices ranging from "Strongly disagree" to "Strongly agree".

Participation in this research may provide information which could be useful in developing and providing nurse education to meet the needs of people over 65 who have urinary incontinence.

### TIME COMMITMENT

This phase of the study will involve, if you participate, completing three questionnaires throughout Year 1; one before your first placement and one after each 12 week period in clinical practice. Each questionnaire will take between 15-20 minutes to complete. If you participate in this part of the study, you will be given further information about Phase 2 of the study at the beginning of Year 2 of your Adult nursing programme. However I will not approach you with this information without your consent. There is a consent form overleaf that you can complete and return if you agree to be approached. Agreeing to receiving information about Phase 2 of the study does not bind you in any way to participating.

### TERMINATION OF PARTICIPATION

You may decide to stop being a part of the research study at any time without explanation. This will not affect your progression through the undergraduate nursing curriculum in any way.

## **Appendix III Participation Information Sheet and Consent Form**

### **RISKS**

This study has been reviewed by the University Research Committee. There is no physical risk to you should you choose to participate in this study.

### **COST, REIMBURSEMENT AND COMPENSATION**

There is no payment for participating; if you decide that you do not want to participate or, if you change your mind after consenting, any data gathered relating to you will be destroyed.

### **CONFIDENTIALITY/ANONYMITY**

The data we collect do not contain any personal information about you except very general demographic information including your age, gender and the general nursing area where you have been in clinical practice. This information will form part of the questionnaire.

No one will link the data you provide to your identity and name; you will be given a code instead of your name to ensure that all the information gathered about you stays anonymous. All participants' data will be combined and none of the data will be traceable to any one person other than by me and both my supervisors. Your name will not be mentioned in any part of this study or any of the reports written after it is finished. All the material gathered during the research study will be held under lock and key in the School of Nursing & Midwifery. All information will be stored for 3-5 years before being destroyed. Consent is entirely voluntary and you can indicate your consent to take part by tearing off the slip below and returning it in the smaller of the two addressed envelopes.

### **FOR FURTHER INFORMATION ABOUT THIS RESEARCH STUDY**

When the data is analysed and the study complete I plan to share the information through presentations and writing for research journals. If you would be interested in having a report of the study, I would be happy to oblige. My contact details can be found at [www.dundee.ac.uk/medden/persons/person640](http://www.dundee.ac.uk/medden/persons/person640) I will be glad to answer your questions about this study at any time.

Thank you for taking the time to read about this study and should you decide to participate I would be very grateful.

### Appendix III Participation Information Sheet and Consent Form

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#### FORM FOR CONSENT

Urinary incontinence in older people: Do discrepancies between nursing student and patient perceptions of illness and treatment representations of incontinence arise from nursing student attitudes or the patterns of care provision they witness? (Phase 1)

Have you read and understood the Participant Information sheet?

Yes/No (please circle one)

Are you willing to be approached during Year 2 to be given information for about the second phase of this study?

Yes/No (please circle one)

Do you understand that agreeing to receive the information does not bind you to consent to participate in Phase 2?

Yes/No (please circle one)

Do you understand that you may decide to stop being a part of this research study at any time without explanation?

Yes/No (please circle one)

#### PHASE 1

By signing below you are agreeing that you have read and understood the Participant Information Sheet and that you agree to take part in Phase 1 of this study. Please return this form in the smaller addressed envelope.

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Participant's signature

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Date

Lindsay Dingwall

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(Lindsay Dingwall signature)

The University Research Ethics Committee of the University of Dundee has reviewed and approved this research study.

## Appendix IV Baseline (Time 1) Questionnaire

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### PRE- CLINICAL PLACEMENT QUESTIONNAIRE

*Urinary incontinence in older people: Do discrepancies between nursing student and patient perceptions of illness and treatment representations of incontinence arise from nursing student attitudes or the patterns of care provision they witness? (Phase 1)*

The following are a number of statements related to older people. Older people are defined by the Department of Health (2001) as being aged 65 years or over.

Please **tick** (✓) the box for each statement that is closest to your opinions and try to be as honest as possible. Once you have completed the questionnaire, please return it in the larger addressed enveloped provided.

	Strongly agree	Slightly agree	Agree	Disagree	Slightly disagree	Strongly disagree
1. It would probably be better if most old people lived in residential units with people their own age	{ }	{ }	{ }	{ }	{ }	{ }
2. Older people are treated as individuals in the acute clinical areas.	{ }	{ }	{ }	{ }	{ }	{ }
3. Most nursing students have little idea what to expect in the care of older adults' setting	{ }	{ }	{ }	{ }	{ }	{ }
4. It would probably be better if most older people lived in residential units with younger people.	{ }	{ }	{ }	{ }	{ }	{ }
5. Caring for older adults is repetitive and boring	{ }	{ }	{ }	{ }	{ }	{ }
6. There is something different about most old people; it's hard to find out what makes them tick	{ }	{ }	{ }	{ }	{ }	{ }
7. Most patients in the care of older adults setting are incontinent of urine	{ }	{ }	{ }	{ }	{ }	{ }
8. Most old people are really no different from anybody else; they're as easy to understand as younger people	{ }	{ }	{ }	{ }	{ }	{ }
9. Nurses who work with older adults need to know the ageing process	{ }	{ }	{ }	{ }	{ }	{ }
10 Most old people get set in their ways and are unable to change.	{ }	{ }	{ }	{ }	{ }	{ }
11. Most older adults are cantankerous	{ }	{ }	{ }	{ }	{ }	{ }

## Appendix IV Baseline (Time 1) Questionnaire

	Strongly agree	Slightly agree	Agree	Disagree	Slightly disagree	Strongly disagree
12. Most old people are capable of new adjustments when the situation demands it.	{ }	{ }	{ }	{ }	{ }	{ }
13. Most lecturers think working with older people is second rate	{ }	{ }	{ }	{ }	{ }	{ }
14. Most old people would prefer to quit work as soon as pensions or their children can support them.	{ }	{ }	{ }	{ }	{ }	{ }
15. Older adults in the care of older adults setting are treated as individuals	{ }	{ }	{ }	{ }	{ }	{ }
16. Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.	{ }	{ }	{ }	{ }	{ }	{ }
17. Most nursing students think the care of older adults setting is about basic nursing care	{ }	{ }	{ }	{ }	{ }	{ }
18. Most old people tend to let their homes become shabby and unattractive.	{ }	{ }	{ }	{ }	{ }	{ }
19. There is more to learn in the care of older adults setting than basic nursing skills	{ }	{ }	{ }	{ }	{ }	{ }
20. Most old people can generally be counted on to maintain a clean, attractive home.	{ }	{ }	{ }	{ }	{ }	{ }
21. Patience is important no matter where you nurse.	{ }	{ }	{ }	{ }	{ }	{ }
22. It is foolish to claim that wisdom comes with age	{ }	{ }	{ }	{ }	{ }	{ }
23. All older adults are different from each Other	{ }	{ }	{ }	{ }	{ }	{ }
24. People grow wiser with the coming of old age	{ }	{ }	{ }	{ }	{ }	{ }
25. Most lecturers promote an interest in older adults	{ }	{ }	{ }	{ }	{ }	{ }
26. Old people have too much power in business and politics.	{ }	{ }	{ }	{ }	{ }	{ }

## Appendix IV Baseline (Time 1) Questionnaire

	Strongly agree	Slightly agree	Agree	Disagree	Slightly disagree	Strongly disagree
27. Most nursing students are surprised that older adults are "normal"	{ }	{ }	{ }	{ }	{ }	{ }
28. Old people should have power in business and politics.	{ }	{ }	{ }	{ }	{ }	{ }
29. It is interesting to talk to older Adults	{ }	{ }	{ }	{ }	{ }	{ }
30. Most old people make one feel ill at ease	{ }	{ }	{ }	{ }	{ }	{ }
31. Nurses who work with older adults do not need to be clever	{ }	{ }	{ }	{ }	{ }	{ }
32. Most old people are very relaxing to be with.	{ }	{ }	{ }	{ }	{ }	{ }
33. Most older adults have lost their sense of humour	{ }	{ }	{ }	{ }	{ }	{ }
34. Most old people bore others by their insistence on talking about "the good old days".	{ }	{ }	{ }	{ }	{ }	{ }
35. Most lecturers are out-of-date with the advances in looking after older adults	{ }	{ }	{ }	{ }	{ }	{ }
36. One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	{ }	{ }	{ }	{ }	{ }	{ }
37. Nurses in the older adults setting will encourage patients to self-care	{ }	{ }	{ }	{ }	{ }	{ }
38. Most old people spend too much time prying into the affairs of others and giving unsought advice.	{ }	{ }	{ }	{ }	{ }	{ }
39 One seldom hears old people complaining about the behaviour of the younger generation	{ }	{ }	{ }	{ }	{ }	{ }
40. Most nursing students are pleasantly surprised at how many acutely ill patients there are in the care of older adults setting	{ }	{ }	{ }	{ }	{ }	{ }
41. Most old people tend to keep to themselves and give advice only when asked.	{ }	{ }	{ }	{ }	{ }	{ }

## Appendix IV Baseline (Time 1) Questionnaire

	Strongly agree	Slightly agree	Agree	Disagree	Slightly disagree	Strongly disagree
42. It is essential that trained nurses motivate nursing students to feel positively about older adults	{ }	{ }	{ }	{ }	{ }	{ }
43. If old people expect to be liked, their first step is to try to get rid of their irritating faults.	{ }	{ }	{ }	{ }	{ }	{ }
44. Personality remains the same as we grow older	{ }	{ }	{ }	{ }	{ }	{ }
45. When you think about it, old people have the same faults as anybody else.	{ }	{ }	{ }	{ }	{ }	{ }
46. Most lecturers will be fully supportive of nurses who want to work with older adults	{ }	{ }	{ }	{ }	{ }	{ }
47. In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in it.	{ }	{ }	{ }	{ }	{ }	{ }
48. Most nurses will take time to chat to older patients	{ }	{ }	{ }	{ }	{ }	{ }
49. You can count on finding a nice residential neighborhood when there is a sizeable number of old people living in it	{ }	{ }	{ }	{ }	{ }	{ }
50. Most nursing students are surprised that older adults can hold a sensible conversation	{ }	{ }	{ }	{ }	{ }	{ }
51. There are a few exceptions, but in general most old people are pretty much alike.	{ }	{ }	{ }	{ }	{ }	{ }
52. It is essential that trained nurses who work with older adults are good role models	{ }	{ }	{ }	{ }	{ }	{ }
53. It is evident that most old people are very different from one another	{ }	{ }	{ }	{ }	{ }	{ }
54. Most nurses who work in the care of older adults settings want to be there	{ }	{ }	{ }	{ }	{ }	{ }
55. Most old people should be more concerned with their personal appearance; they're too untidy	{ }	{ }	{ }	{ }	{ }	{ }
56. Nursing students are well prepared for working with older adults	{ }	{ }	{ }	{ }	{ }	{ }

## Appendix IV Baseline (Time 1) Questionnaire

	Strongly agree	Slightly agree	Agree	Disagree	Slightly disagree	Strongly disagree
57. Most old people seem quite clean and neat in their personal appearance.	{ }	{ }	{ }	{ }	{ }	{ }
58. Most nurses who work in the care of older adults setting have excellent interpersonal skills	{ }	{ }	{ }	{ }	{ }	{ }
59. Most old people are irritable, grouchy, and unpleasant.	{ }	{ }	{ }	{ }	{ }	{ }
60. Most nurses who work with older adults are enthusiastic about their work	{ }	{ }	{ }	{ }	{ }	{ }
61. Most old people are cheerful, agreeable, and good humored	{ }	{ }	{ }	{ }	{ }	{ }
62. Most old people are constantly complaining about the behavior of the younger generation	{ }	{ }	{ }	{ }	{ }	{ }
63. Most old people make more excessive demands for love and reassurance than anyone else.	{ }	{ }	{ }	{ }	{ }	{ }
64. Most old people need no more love and reassurance than anyone else	{ }	{ }	{ }	{ }	{ }	{ }

**Finally, will you please complete the following information by CIRCLING the most appropriate answers. This information will aid analysis of the data.**

- 1 Age: 18 – 29    30 – 44    45 – 59
- 2 Sex: Male    Female
- 3 Have you worked in any of the following areas prior to commencing nurse education (please circle)?
  - Hospital
  - Nursing Home
  - Residential Home
  - Community Nursing

**Thank you for taking part in this research study. For any further information please contact Lindsay Dingwall at [l.h.dingwall@dundee.ac.uk](mailto:l.h.dingwall@dundee.ac.uk) or on 01382 632027.**



## Appendix V Time 2/Time 3 Questionnaire

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### POST CLINICAL PLACEMENT QUESTIONNAIRE

*Urinary incontinence in older people: Do discrepancies between nursing student and patient perceptions of illness and treatment representations of incontinence arise from nursing student attitudes or the patterns of care provision they witness? (Phase 1)*

The following are a number of statements related to older people. Older people are defined by the Department of Health (2001) as being aged 65 years or over.

Please **tick (✓)** the box for each statement that is closest to your opinions and try to be as honest as possible. Once you have completed the questionnaire, please return it in the larger addressed enveloped provided.

	Strongly agree	Slightly agree	Agree	Disagree	Slightly disagree	Strongly disagree
1. It would probably be better if most old people lived in residential units with people their own age	{ }	{ }	{ }	{ }	{ }	{ }
2. Older people are treated as individuals in the acute clinical areas.	{ }	{ }	{ }	{ }	{ }	{ }
3. Most nursing students have little idea what to expect in the care of older adults' setting	{ }	{ }	{ }	{ }	{ }	{ }
4. It would probably be better if most older people lived in residential units with younger people.	{ }	{ }	{ }	{ }	{ }	{ }
5. Caring for older adults is repetitive and boring	{ }	{ }	{ }	{ }	{ }	{ }
6. There is something different about most old people; it's hard to find out what makes them tick	{ }	{ }	{ }	{ }	{ }	{ }
7. Most patients in the care of older adults setting are incontinent of urine	{ }	{ }	{ }	{ }	{ }	{ }
8. Most old people are really no different from anybody else; they're as easy to understand as younger people	{ }	{ }	{ }	{ }	{ }	{ }
9. Nurses who work with older adults need to know the ageing process	{ }	{ }	{ }	{ }	{ }	{ }
10 Most old people get set in their ways and are unable to change.	{ }	{ }	{ }	{ }	{ }	{ }
11. Most older adults are cantankerous	{ }	{ }	{ }	{ }	{ }	{ }

## Appendix V Time 2/Time 3 Questionnaire

	Strongly agree	Slightly agree	Agree	Disagree	Slightly disagree	Strongly disagree
12. Most old people are capable of new adjustments when the situation demands it.	{ }	{ }	{ }	{ }	{ }	{ }
13. Most lecturers think working with older people is second rate	{ }	{ }	{ }	{ }	{ }	{ }
14. Most old people would prefer to quit work as soon as pensions or their children can support them.	{ }	{ }	{ }	{ }	{ }	{ }
15. Older adults in the care of older adults setting are treated as individuals	{ }	{ }	{ }	{ }	{ }	{ }
16. Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.	{ }	{ }	{ }	{ }	{ }	{ }
17. Most nursing students think the care of older adults setting is about basic nursing care	{ }	{ }	{ }	{ }	{ }	{ }
18. Most old people tend to let their homes become shabby and unattractive.	{ }	{ }	{ }	{ }	{ }	{ }
19. There is more to learn in the care of older adults setting than basic nursing skills	{ }	{ }	{ }	{ }	{ }	{ }
20. Most old people can generally be counted on to maintain a clean, attractive home.	{ }	{ }	{ }	{ }	{ }	{ }
21. Patience is important no matter where you nurse.	{ }	{ }	{ }	{ }	{ }	{ }
22. It is foolish to claim that wisdom comes with age	{ }	{ }	{ }	{ }	{ }	{ }
23. All older adults are different from each Other	{ }	{ }	{ }	{ }	{ }	{ }
24. People grow wiser with the coming of old age	{ }	{ }	{ }	{ }	{ }	{ }
25. Most lecturers promote an interest in older adults	{ }	{ }	{ }	{ }	{ }	{ }
26. Old people have too much power in business and politics.	{ }	{ }	{ }	{ }	{ }	{ }

## Appendix V Time 2/Time 3 Questionnaire

	Strongly agree	Slightly agree	Agree	Disagree	Slightly disagree	Strongly disagree
27. Most nursing students are surprised that older adults are "normal"	{ }	{ }	{ }	{ }	{ }	{ }
28. Old people should have power in business and politics.	{ }	{ }	{ }	{ }	{ }	{ }
29. It is interesting to talk to older Adults	{ }	{ }	{ }	{ }	{ }	{ }
30. Most old people make one feel ill at ease	{ }	{ }	{ }	{ }	{ }	{ }
31. Nurses who work with older adults do not need to be clever	{ }	{ }	{ }	{ }	{ }	{ }
32. Most old people are very relaxing to be with.	{ }	{ }	{ }	{ }	{ }	{ }
33. Most older adults have lost their sense of humour	{ }	{ }	{ }	{ }	{ }	{ }
34. Most old people bore others by their insistence on talking about "the good old days".	{ }	{ }	{ }	{ }	{ }	{ }
35. Most lecturers are out-of-date with the advances in looking after older adults	{ }	{ }	{ }	{ }	{ }	{ }
36. One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	{ }	{ }	{ }	{ }	{ }	{ }
37. Nurses in the older adults setting will encourage patients to self-care	{ }	{ }	{ }	{ }	{ }	{ }
38. Most old people spend too much time prying into the affairs of others and giving unsought advice.	{ }	{ }	{ }	{ }	{ }	{ }
39 One seldom hears old people complaining about the behaviour of the younger generation	{ }	{ }	{ }	{ }	{ }	{ }
40. Most nursing students are pleasantly surprised at how many acutely ill patients there are in the care of older adults setting	{ }	{ }	{ }	{ }	{ }	{ }
41. Most old people tend to keep to themselves and give advice only when asked.	{ }	{ }	{ }	{ }	{ }	{ }

## Appendix V Time 2/Time 3 Questionnaire

	Strongly agree	Slightly agree	Agree	Disagree	Slightly disagree	Strongly disagree
42. It is essential that trained nurses motivate nursing students to feel positively about older adults	{ }	{ }	{ }	{ }	{ }	{ }
43. If old people expect to be liked, their first step is to try to get rid of their irritating faults.	{ }	{ }	{ }	{ }	{ }	{ }
44. Personality remains the same as we grow older	{ }	{ }	{ }	{ }	{ }	{ }
45. When you think about it, old people have the same faults as anybody else.	{ }	{ }	{ }	{ }	{ }	{ }
46. Most lecturers will be fully supportive of nurses who want to work with older adults	{ }	{ }	{ }	{ }	{ }	{ }
47. In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in it.	{ }	{ }	{ }	{ }	{ }	{ }
48. Most nurses will take time to chat to older patients	{ }	{ }	{ }	{ }	{ }	{ }
49. You can count on finding a nice residential neighborhood when there is a sizeable number of old people living in it	{ }	{ }	{ }	{ }	{ }	{ }
50. Most nursing students are surprised that older adults can hold a sensible conversation	{ }	{ }	{ }	{ }	{ }	{ }
51. There are a few exceptions, but in general most old people are pretty much alike.	{ }	{ }	{ }	{ }	{ }	{ }
52. It is essential that trained nurses who work with older adults are good role models	{ }	{ }	{ }	{ }	{ }	{ }
53. It is evident that most old people are very different from one another	{ }	{ }	{ }	{ }	{ }	{ }
54. Most nurses who work in the care of older adults settings want to be there	{ }	{ }	{ }	{ }	{ }	{ }
55. Most old people should be more concerned with their personal appearance; they're too untidy	{ }	{ }	{ }	{ }	{ }	{ }
56. Nursing students are well prepared for working with older adults	{ }	{ }	{ }	{ }	{ }	{ }

## Appendix V Time 2/Time 3 Questionnaire

	Strongly agree	Slightly agree	Agree	Disagree	Slightly disagree	Strongly disagree
57. Most old people seem quite clean and neat in their personal appearance.	{ }	{ }	{ }	{ }	{ }	{ }
58. Most nurses who work in the care of older adults setting have excellent interpersonal skills	{ }	{ }	{ }	{ }	{ }	{ }
59. Most old people are irritable, grouchy, and unpleasant.	{ }	{ }	{ }	{ }	{ }	{ }
60. Most nurses who work with older adults are enthusiastic about their work	{ }	{ }	{ }	{ }	{ }	{ }
61. Most old people are cheerful, agreeable, and good humored	{ }	{ }	{ }	{ }	{ }	{ }
62. Most old people are constantly complaining about the behavior of the younger generation	{ }	{ }	{ }	{ }	{ }	{ }
63. Most old people make excessive demands for love and reassurance than anyone else.	{ }	{ }	{ }	{ }	{ }	{ }
64. Most old people need no more love and reassurance than anyone else	{ }	{ }	{ }	{ }	{ }	{ }

**Finally, please complete the following information by CIRCLING the clinical area where you had your most recent practice placement.**

**Acute Medicine (any specialty except older adult)**

**Acute Surgery (any specialty except older adult)**

**Acute Medicine for the Elderly**

**NHS Specialist older adult care setting – assessment**

**NHS Specialist older adult care setting – rehabilitation**

**NHS Specialist older adult care setting – long term care**

**NHS Specialist older adult care setting – other (please specify) \_\_\_\_\_**

**Non-NHS Care Home for Older People**

**Other Non-NHS care setting (please specify) \_\_\_\_\_**

**Thank you for taking part in this research study. For any further information please contact Lindsay Dingwall at [l.h.dingwall@dundee.ac.uk](mailto:l.h.dingwall@dundee.ac.uk) or on 01382 632027.**

## Appendix VI UREC 8100 Ethics Permission

-----Original Message-----

From: Peter Willatts

Sent: 17 November 2008 4:55 PM

To: Lindsay Dingwall <L.H.Dingwall@dundee.ac.uk>

Cc: Elizabeth Evans <e.evans@dundee.ac.uk>

Subject: Re: Ethics application UREC 8100, Urinary incontinence in the elderly...

Dear Lindsay,

Thank you for making the requested changes. Your application has been approved and you may begin work on the study.

Good luck with your research.

Peter Willatts

Chair, University Research Ethics Committee

## Appendix VII Descriptive Statistics from Kogan's (1961) 34 item KOP at Time 1, 2 and 3

### Time 1 34 item KOP (N = 261)

Item		N		Mean	Strongly Agree		Agree		Slightly Agree		Slightly Disagree		Disagree		Strongly Disagree	
		Valid	Missing		N	%	N	%	N	%	N	%	N	%	N	%
1	It would probably be better if most old people lived in residential units with people their own age	261	0	4.45	79	(30)	26	(29)	34	(13)	33	(13)	34	(13)	5	(2)
4	It would probably be better if most older people lived in residential units with younger people.	260	1	2.17	1	(0.5)	7	(2.5)	15	(6)	50	(19)	125	(48)	62	(24)
6	There is something different about most old people; it's hard to find out what makes them tick	259	2	4.12	33	(13.5)	97	(37)	48	(18.5)	38	(14.5)	39	(15)	4	(1.5)
8	Most old people are really no different from anybody else; they're as easy to understand as younger people	261	0	4.38	49	(19)	98	(37.5)	47	(18)	39	(11.5)	37	(14)	0	(0)
10	Most old people get set in their ways and are unable to change.	260	1	3.32	2	(1)	65	(25)	32	(12)	91	(35)	57	(22)	13	(5)
12	Most old people are capable of new adjustments when the situation demands it.	261	0	4.13	7	(3)	133	(51)	51	(19)	31	(12)	36	(14)	3	(1)
14	Most old people would prefer to quit work as soon as pensions or their children can support them.	261	0	5.03	97	(37)	109	(42)	37	(14)	7	(2.5)	7	(2.5)	4	(2)

## Appendix VII Descriptive Statistics from Kogan's (1961) 34 item KOP at Time 1, 2 and 3

16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.	261	0	4.93	77	(29.5)	125	(48)	39	(15)	8	(3)	9	(3.5)	3	(1)
18	Most old people tend to let their homes become shabby and unattractive.	261	0	4.93	85	(32)	122	(48)	25	(9)	11	(4)	15	(6)	3	(1)
20	Most old people can generally be counted on to maintain a clean, attractive home	261	0	4.20	11	(4)	129	(49)	59	(23)	25	(9)	37	(14)	0	(0)
22	It is foolish to claim that wisdom comes with age	260	1	2.94	14	(5.5)	42	(16)	22	(8.5)	46	(18)	11	(42)	26	(10)
24	People grow wiser with the coming of old age	260	1	3.53	11	(4)	67	(26)	58	(22)	41	(16)	78	(30)	5	(2)
26	Old people have too much power in business and politics.	259	2	4.68	30	(12)	160	(61)	41	(16)	17	(7)	9	(3)	2	(1)
28	Old people should have power in business and politics.	259	2		13	(5)	119	(46)	40	(15)	24	(9)	59	(23)	4	(2)
30	Most old people make one feel ill at ease	258	3	4.11	41	(16)	99	(38)	29	(11)	37	(14)	47	(17)	7	(3)
32	Most old people are very relaxing to be with	259	2	3.96	13	(5)	96	(37)	66	(25)	42	(16)	35	(13)	7	(3)
34	Most old people bore others by their insistence on talking about "the good old days".	261	0	5.03	90	(34.5)	113	(43)	41	(16)	10	(4)	6	(2)	1	(0.5)
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	261	0	4.89	82	(31)	110	(42)	45	(17)	9	(3)	12	(5)	3	(1)
38	Most old people spend too much time prying into the affairs of others and giving unsought advice.	261	0	4.75	54	(21)	127	(49)	55	(21)	14	(5)	9	(3)	2	(1)
39	One seldom hears old people complaining about the behaviour of the younger generation	258	3	3.01	7	(3)	34	(13)	38	(15)	66	(25)	97	(37)	16	(6)
41	Most old people tend to keep to themselves and give advice only when asked.	258	3	5.02	12	(5)	69	(26)	45	(17)	37	(14)	93	(36)	2	(1)
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults.	260	1	5.02	94	(36)	117	(44.5)	26	(10)	10	(4)	12	(5)	1	(0.5)
45	When you think about it, old people have the same faults as anybody else	261	0	4.97	62	(24)	154	(59)	32	(13)	2	(1)	10	(3.5)	1	(0.5)
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in it.	261	0	5.33	132	(51)	102	(40)	17	(6.5)	4	(1.5)	3	(1)	3	(1)
49	You can count on finding a nice residential neighbourhood when there is a sizeable number of old people living in it	258	3	4.18	26	(10)	112	(43)	57	(22)	13	(5)	45	(17)	5	(2)



## Appendix VII Descriptive Statistics from Kogan's (1961) 34 item KOP at Time 1, 2 and 3

51	There are a few exceptions, but in general most old people are pretty much alike.	260	1	4.59	57	(22)	125	(48)	36	(14)	12	(5)	20	(8)	10	(4)
53	It is evident that most old people are very different from one another	261	0	4.98	94	(36)	104	(40)	43	(16.5)	8	(3.5)	9	(3.5)	3	(1)
55	Most old people should be more concerned with their personal appearance; they're too untidy	261	0	4.99	88	(34)	109	(42)	48	(18)	7	(3)	8	(3.5)	1	(0.5)
57	Most old people seem quite clean and neat in their personal appearance.	261	0	4.50	27	(10)	147	(56)	39	(15)	27	(10)	21	(8)	0	(0)
59	Most old people are irritable, grouchy, and unpleasant.	261	0	5.16	98	(38)	119	(46)	35	(13)	7	(3)	1	(0.5)	1	(0.5)
61	Most old people are cheerful, agreeable, and good humoured	259	2	4.35	24	(9)	111	(43)	81	(31)	22	(8.5)	21	(8)	1	(0.5)
62	Most old people are constantly complaining about the behaviour of the younger generation	260	1	3.72	8)	(3	89	(34)	44	(17)	69	(26)	42	(16)	7	(3)
63	Most old people make more excessive demands for love and reassurance than anyone else.	261	0	4.64	37	(14)	144	(55)	49	(18.5)	12	(5)	18	(7)	1	(0.5)
64	Most old people need no more love and reassurance than anyone else	261	0	3.61	15	(6)	98	(38)	26	(10)	37	(14)	63	(24)	22	(8)

## Appendix VII Descriptive Statistics from Kogan's (1961) 34 item KOP at Time 1, 2 and 3

### Time 2 34 Item KOP (n=239)

Item		N		Mean	Strongly Agree		Agree		Slightly Agree		Slightly Disagree		Disagree		Strongly Disagree	
		Valid	Missing		N	%	N	%	N	%	N	%	N	%	N	%
1	It would probably be better if most old people lived in residential units with people their own age	239	0	4.28	64	(27)	62	(26)	27	(11)	56	(23)	22	(9)	8	(3)
4	It would probably be better if most older people lived in residential units with younger people.	239	0	2.46	5	(2)	18	(7.5)	27	(11)	34	(14)	104	(43.5)	51	(21)
6	There is something different about most old people; it's hard to find out what makes them tick	238	1	4.25	42	(17.5)	88	(37)	34	(14)	38	(16)	35	(15)	1	(0.5)
8	Most old people are really no different from anybody else; they're as easy to understand as younger people	239	0	4.55	60	(25)	90	(37.5)	36	(15)	26	(11)	26	(11)	1	(0.5)
10	Most old people get set in their ways and are unable to change.	238	1	3.74	16	(7)	79	(33)	26	(11)	75	(31)	31	(13)	12	(5)
12	Most old people are capable of new adjustments when the situation demands it.	239	0	4.44	28	(11.5)	114	(48)	54	(22)	21	(9)	21	(9)	1	(0.5)
14	Most old people would prefer to quit work as soon as pensions or their children can support them.	238	1	4.95	89	(37)	98	(41)	23	(9)	9	(4)	16	(7)	2	(1)
16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.	239	0	4.87	73	9(30.5)	108	(45)	32	(13)	8	(3)	17	(7)	1	(0.5)
18	Most old people tend to let their homes become shabby and unattractive.	239	0	4.75	73	(32)	98	(41)	26	(11)	13	(5)	21	(9)	5	(2)
20	Most old people can generally be counted on to maintain a clean, attractive home	238	1	4.40	31	(13)	114	(48)	43	(18)	19	(8)	31	(13)	0	(0)
22	It is foolish to claim that wisdom comes with age	238	1	3.05	8	(3)	51	(21)	33	(14)	34	(14)	76	(32)	36	(15)
24	People grow wiser with the coming of old age	239	0	3.67	17	(7)	58	(24)	67	(28)	29	(12)	61	(26)	7	(3)

## Appendix VII Descriptive Statistics from Kogan's (1961) 34 item KOP at Time 1, 2 and 3

26	Old people have too much power in business and politics.	236	3	4.49	30	(13)	125	(53)	30	(13)	10	(4)	40	(16.5)	1	(0.5)
28	Old people should have power in business and politics.	238	1	4.09	6	(2.5)	112	(47)	54	(23)	35	(15)	25	(11)	6	(2.5)
30	Most old people make one feel ill at ease	239	0	3.97	36	(15)	70	(29)	38	(16)	49	(20)	33	(14)	9	(4)
32	Most old people are very relaxing to be with	238	1	3.95	27	(11)	55	(23)	75	(31)	49	(20)	24	(10)	8	(3)
34	Most old people bore others by their insistence on talking about "the good old days".	239	0	5.08	98	(41)	85	(36)	36	(15)	18	(7)	2	(1)	0	(0)
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	239	0	4.76	80	(33.5)	83	(35)	43	(18)	11	(5)	16	(7)	6	(2.5)
38	Most old people spend too much time prying into the affairs of others and giving unsought advice.	238	1	4.71	60	(25)	97	(40.5)	53	(22)	11	(5)	16	(7)	1	(0.5)
39	One seldom hears old people complaining about the behaviour of the younger generation	239	0	2.97	7	(3)	29	(12)	40	(17)	54	(23)	91	(38)	18	(8)
41	Most old people tend to keep to themselves and give advice only when asked.	239	0	3.43	8	(3)	66	(28)	39	(16)	40	(17)	80	(33.5)	6	(2.5)
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults.	239	0	5.08	102	(43)	98	(41)	11	(5)	15	(6)	9	(4)	4	(2)
45	When you think about it, old people have the same faults as anybody else	239	0	5.13	88	(37)	114	(47.5)	26	(11)	3	(1)	6	(2.5)	2	(1)
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in it.	239	0	5.11	121	(51)	72	(30)	17	(7)	15	(6.5)	8	(3)	6	(2.5)
49	You can count on finding a nice residential neighbourhood when there is a sizeable number of old people living in it	239	0	4.16	30	(12.5)	91	(38)	55	(23)	19	(8)	38	(16)	6	(2.5)
51	There are a few exceptions, but in general most old people are pretty much alike.	239	0	4.65	66	(28)	99	(41)	30	(13)	18	(7.5)	20	(8)	6	(2.5)
53	It is evident that most old people are very different from one another	239	0	5.05	100	(42)	79	(33)	41	(17)	12	(5)	4	(2)	3	(1)
55	Most old people should be more concerned with their personal appearance; they're too untidy	238	1	5.00	97	(41)	77	(32)	42	(18)	14	(6)	6	(2.5)	1	(0.5)
57	Most old people seem quite clean and neat in their personal appearance.	239	0	4.48	30	(13)	127	(53)	28	(12)	36	(15)	17	(7)	1	(0.5)

## Appendix VII Descriptive Statistics from Kogan's (1961) 34 item KOP at Time 1, 2 and 3

59	Most old people are irritable, grouchy, and unpleasant.	237	2	5.05	97	(41)	85	(36)	42	(18)	1	(0.5)	11	(5)	1	(0.5)
61	Most old people are cheerful, agreeable, and good humoured	239	0	4.29	37	(16)	77	(32)	72	(30)	25	(10.5)	27	(11)	1	(0.5)
62	Most old people are constantly complaining about the behaviour of the younger generation	238	1	4.15	26	(11)	92	(39)	55	(22)	34	(14)	28	(12)	5	(2)
63	Most old people make more excessive demands for love and reassurance than anyone else.	238	1	4.80	56	(23)	113	(47)	46	(19)	12	(5)	11	(5)	0	(0)
64	Most old people need no more love and reassurance than anyone else	239	0	3.90	34	(14)	69	(29)	49	(20.5)	25	(10.5)	49	(20.5)	13	(5.5)

## Appendix VII Descriptive Statistics from Kogan's (1961) 34 item KOP at Time 1, 2 and 3

### Time 3 34 item KOP (N = 205)

Item		N		Mean	Strongly Agree		Agree		Slightly Agree		Slightly Disagree		Disagree		Strongly Disagree	
		Valid	Missing		N	%	N	%	N	%	N	%	N	%	N	%
1	It would probably be better if most old people lived in residential units with people their own age	205	0	4.35	59	(29)	57	(28)	22	(11)	37	(17)	29	(14)	4	(2)
4	It would probably be better if most older people lived in residential units with younger people.	204	1	2.37	4	(2)	9	(4)	23	(11)	31	(15)	92	(45)	45	(22)
6	There is something different about most old people; it's hard to find out what makes them tick	205	0	4.22	28	(14)	81	(39)	41	(20)	21	(10)	32	(16)	2	(1)
8	Most old people are really no different from anybody else; they're as easy to understand as younger people	205	0	4.59	45	(22)	83	(41)	39	(19)	25	(12)	13	(6)	0	(0)
10	Most old people get set in their ways and are unable to change.	205	0	3.57	6	(3)	60	(29)	33	(16)	61	(30)	36	(18)	9	(4)
12	Most old people are capable of new adjustments when the situation demands it.	205	0	4.36	18	(9)	104	(51)	35	(17)	31	(15)	16	(8)	1	(0.5)
14	Most old people would prefer to quit work as soon as pensions or their children can support them.	205	0	5.08	85	(41.5)	78	(38)	27	(13)	4	(2)	10	(5)	1	(0.5)
16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.	205	0	4.86	59	(29)	91	(44)	34	(17)	11	(5)	9	(4.5)	1	(0.5)

## Appendix VII Descriptive Statistics from Kogan's (1961) 34 item KOP at Time 1, 2 and 3

18	Most old people tend to let their homes become shabby and unattractive.	205	0	4.80	69 (34)	77 (38)	31 (15)	9 (4)	15 (7)	4 (2)
20	Most old people can generally be counted on to maintain a clean, attractive home	205	0	4.29	15 (7)	101 (49)	43 (21)	21 (10)	25 (12)	0 (0)
22	It is foolish to claim that wisdom comes with age	205	0	3.03	2 (1)	45 (22)	28 (14)	38 (18)	66 (32)	26 (13)
24	People grow wiser with the coming of old age	205	0	3.69	11 (5)	52 (25)	58 (28)	35 (17)	48 (23)	2 (1)
26	Old people have too much power in business and politics.	205	0	4.62	33 (16)	108 (53)	27 (13)	28 (14)	8 (4)	1 (0.5)
28	Old people should have power in business and politics.	204	1	4.04	13 (6)	88 (43)	44 (21)	17 (9)	37 (18)	5 (2)
30	Most old people make one feel ill at ease	205	0	4.16	35 (17)	74 (36)	30 (15)	28 (14)	30 (15)	8 (4)
32	Most old people are very relaxing to be with	203	2	3.97	15 (7)	61 (30)	60 (29)	40 (19)	26 (13)	2 (1)
34	Most old people bore others by their insistence on talking about "the good old days".	205	0	5.05	75 (37)	80 (39)	37 (18)	12 (6)	1 (0.5)	) (0)
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	205	0	4.89	68 (33)	86 (42)	30 (15)	6 (3)	11 (5)	4 (2)
38	Most old people spend too much time prying into the affairs of others and giving unsought advice.	205	0	4.78	41 (20)	111 (54)	30 (15)	13 (6)	10 (5)	0 (0)
39	One seldom hears old people complaining about the behaviour of the younger generation	205	0	2.96	7 (3)	34 (17)	22 (11)	43 (21)	78 (38)	21 (10)
41	Most old people tend to keep to themselves and give advice only when asked.	205	0	3.57	6 (3)	67 (32)	29 (14)	42 (20)	58 (28)	3 (1.5)
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults.	204	1	5.08	79 (38)	91 (44)	19 (9)	7 (3)	5 (2.5)	3 (1.5)
45	When you think about it, old people have the same faults as anybody else	205	0	5.03	60 (29)	112 (55)	22 (11)	3 (1.5)	6 (3)	2 (1)s
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in it.	204	1	5.17	98 (46)	74 (36)	16 (8)	9 (4)	2 (1)	5 (2)
49	You can count on finding a nice residential neighbourhood when there is a sizeable number of old people living in it	204	1	4.19	22 (11)	81 (39)	53 (26)	14 (7)	30 (15)	4 (2)
51	There are a few exceptions, but in general most old people are pretty much alike.	205	0	4.79	54 (26)	96 (47)	30 (15)	10 (5)	13 (6)	2 (1)

## Appendix VII Descriptive Statistics from Kogan's (1961) 34 item KOP at Time 1, 2 and 3

53	It is evident that most old people are very different from one another	205	0	5.11	86 (42)	75 (38)	28 (14)	5 (2)	6 (3)	2 (1)
55	Most old people should be more concerned with their personal appearance; they're too untidy	205	0	5.01	70 (34)	82 (40)	41 (20)	9 (4)	3 (1.5)	0 (0)
57	Most old people seem quite clean and neat in their personal appearance.	205	0	4.50	25 (12)	107 (52)	40 19	13 (6)	18 (9)	2 (1)
59	Most old people are irritable, grouchy, and unpleasant.	205	0	5.07	83 (40)	73 (36)	36 (18)	7 (3)	5 (2)	1 (0.5)
61	Most old people are cheerful, agreeable, and good humoured	205	0	4.19	19 (9)	70 (34)	71 (35)	21 (10)	23 (11)	1 (0.5)
62	Most old people are constantly complaining about the behaviour of the younger generation	205	0	4.16	19 (9)	83 (40)	43 (21)	37 (18)	18 (9)	5 (2)
63	Most old people make more excessive demands for love and reassurance than anyone else.	205	0	4.72	36 (22)	97 (47)	35 (17)	14 (7)	12 (6)	1 (0.5)
64	Most old people need no more love and reassurance than anyone else	205	0	3.71	16 (8)	68 (33)	38 (19)	25 (12)	39 (19)	19 (9)

# Appendix VIII Descriptive Statistics from McLafferty's (2005) 30 item MANOP at Times 1, 2 and 3

Time 1 MANOP 30 items (n = 261)		N		Mean	Strongly Agree		Agree		Slightly Agree		Slightly Disagree		Disagree		Strongly Disagree	
		Valid	Missing		N	%	N	%	N	%	N	%	N	%	N	%
Item																
2	Older people are treated as individuals in the acute clinical areas	259	2	3.63	16	(6)	78	(30)	35	(13)	57	(22)	69	(26)	4	(1.5)
3	Most nursing students have little idea what to expect in the care of older adults' setting	259	2	2.95	4	(1.5)	49	(19)	28	(11)	58	(22)	83	(34)	31	(12)
5	Caring for older adults is repetitive and boring	261	0	4.96	105	(40)	90	(34)	33	(13)	20	(8)	10	(4)	3	(1)
7	Most patients in the care of older adults setting are incontinent of urine	261	0	4.31	32	(12)	127	(49)	37	(14)	23	(9)	38	(15)	4	(1.5)
9	Nurses who work with older adults need to know the ageing process	261	0	4.88	83	(32)	110	(42)	46	(18)	2	(1)	15	(6)	5	(2)
11	Most older adults are cantankerous	239	22	2.34	3	(1)	16	(6)	14	(5)	32	(12)	136	(52)	38	(15)
13	Most lecturers think working with older people is second rate	257	4	4.80	55	(21)	143	(55)	31	(12)	13	(5)	14	(5)	1	(0.5)
15	Older adults in the care of older adults setting are treated as individuals	256	5	3.81	7	(3)	111	(42)	35	(13)	41	(16)	55	(21)	7	(3)
17	Most nursing students think the care of older adults setting is about basic nursing care	260	1	3.2311	13	(5)	66	(25)	23	(9)	40	(15)	102	(39)	16	(6)
19	There is more to learn in the care of older adults setting than basic nursing skills	261	0	4.7663	80	(31)	108	(41)	31	(12)	19	(7)	20	(8)	3	(1)
21	Patience is important no matter where you nurse	261	0	5.8276	222	(85)	36	(14)	2	(1)	0	(0)	0	(0)	1	(0.5)
23	All older adults are different from each other	260	1	5.4384	150	(57.5)	83	(32)	24	((1)	0	(0)	2	(1)	1	(0.5)
25	Most lecturers promote an interest in older adults	257	4	4.0823	18	(7)	109	(42)	58	(22)	22	(8)	48	(18)	2	(1)
27	Most nursing students are surprised that older adults are "normal"	261	0	3.6858	9	(3)	101	(39)	30	(12)	48	(18)	66	(25)	7	(3)



## Appendix VIII Descriptive Statistics from McLafferty's (2005) 30 item MANOP at Times 1, 2 and 3

29	It is interesting to talk to older adults	261	0	5.2031	110 (42)	103 (39.5)	42 (16)	4 (1.5)	1 (0.5)	1 (0.5)
31	Nurses who work with older adults do not need to be clever	261	0	5.0651	123 (47)	91 (35)	16 (6)	10 (4)	14 (5)	7 (3)
33	Most older adults have lost their sense of humour	260	1	5.1581	105 (40)	106 (41)	40 (15)	6 (2)	2 (1)	1 (0.5)
35	Most lecturers are out-of-date with the advances in looking after older adults	259	2	4.8880	53 (20)	152 (58)	38 (15)	9 (3)	4 (1.5)	3 (1)
37	Nurses in the older adults setting will encourage patients to self-care	260	1	4.3969	40 (15)	120 (46)	45 (17)	19 (7)	31 (12)	5 (2)
40	Most nursing students are pleasantly surprised at how many acutely ill patients there are in the care of older adults setting	252	9	3.4467	10 (4)	71 (27)	35 (13)	46 (18)	82 (31)	8 (3)
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	261	0	5.4176	158 (60.5)	78 (30)	13 (5)	4 (1.5)	4 (1.5)	4 (1.5)
44	Personality remains the same as we grow older	261	0	3.4559	14 (5)	77 (30)	32 (12)	44 (17)	79 (30)	15 (6)
46	Most lecturers will be fully supportive of nurses who want to work with older adults	260	1	5.1818	99 (38)	129 (49)	19 (7)	7 (3)	6 (2)	0 (0)
48	Most nurses will take time to chat to older patients	260	1	4.0228	24 (9)	104 (40)	44 (17)	38 (15)	42 (16)	8 (3)
50	Most nursing students are surprised that older adults can hold a sensible conversation	261	0	3.9539	25 (10)	110 (42)	28 (11)	31 (12)	51 (19)	13 (5)
52	It is essential that trained nurses who work with older adults are good role models	258	3	4.7433	70 (27)	114 (43)	44 (17)	10 (4)	19 (7)	4 (1.5)
54	Most nurses who work in the care of older adults settings want to be there	259	2	3.9885	23 (9)	107 (41)	36 (14)	40 (15)	44 (17)	9 (3)
56	Nursing students are well prepared for working with older adults	260	1	3.5397	9 (3)	80 (31)	47 (18)	41 (16)	72 (28)	11 (4)
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	259	2	3.9734	12 (5)	110 (42)	53 (20)	32 (12)	47 (18)	5 (2)
60	Most nurses who work with older adults are enthusiastic about their work	261	0	3.8046	16 (6)	86 (33)	62 (24)	36 (14)	50 (19)	11 (4)

# Appendix VIII Descriptive Statistics from McLafferty's (2005) 30 item MANOP at Times 1, 2 and 3

Time 2 MANOP 30 items (n = 239)		N		Mean	Strongly Agree		Agree		Slightly Agree		Slightly Disagree		Disagree		Strongly Disagree	
Item		Valid	Missing		N	%	N	%	N	%	N	%	N	%	N	%
2	Older people are treated as individuals in the acute clinical areas	239	0	3.4686	21	(9)	57	(23)	32	(13)	50	(21)	61	(25)	18	(8)
3	Most nursing students have little idea what to expect in the care of older adults' setting	239	0	3.2050	11	(5)	54	(22)	31	(13)	42	(18)	79	(33)	22	(9)
5	Caring for older adults is repetitive and boring	239	0	5.0251	92	(39)	98	(41)	(25)	10	13	(5)	9	(4)	2	(1)
7	Most patients in the care of older adults setting are incontinent of urine	239	0	4.1381	45	(19)	78	(32)	27	(11)	45	(19)	42	(18)	2	(1)
9	Nurses who work with older adults need to know the ageing process	239	0	5.0251	99	(41)	97	(40)	16	(7)	10	(4)	11	(5)	6	(3)
11	Most older adults are cantankerous	226	13	4.7920	56	(23)	11	(46)	33	(14)	10	(4)	14	(6)	2	(1)
13	Most lecturers think working with older people is second rate	239	0	4.8117	65	(27)	115	(48)	31	(13)	5	(2)	23	(10)	0	(0)
15	Older adults in the care of older adults setting are treated as individuals	237	2	3.7397	17	(7)	82	(34)	32	(13)	43	(18)	55	(23)	8	(3)
17	Most nursing students think the care of older adults setting is about basic nursing care	238	1	2.7708	9	(4)	24	(10)	19	(6)	57	(24)	109	(46)	20	(8)
19	There is more to learn in the care of older adults setting than basic nursing skills	239	0	4.5858	60	(25)	98	(41)	39	(16)	12	(5)	24	(10)	6	(3)
21	Patience is important no matter where you nurse	237	2	5.7269	194	(81)	29	(12)	13	(5)	0	(0)	0	(0)	2	(1)
23	All older adults are different from each other	238	1	5.4065	132	(55)	83	(35)	16	(7)	5	(2)	0	(0)	2	(1)
25	Most lecturers promote an interest in older adults	238	1	4.1247	22	(9)	79	(33)	81	(34)	20	(8)	35	(15)	1	(0.5)
27	Most nursing students are surprised that older adults are "normal"	239	0	3.4603	7	(3)	68	(29)	28	(13)	73	(30)	51	(21)	12	(5)
29	It is interesting to talk to older adults	239	0	5.1883	102	(43)	92	(39)	39	(16)	2	(1)	2	(1)	2	(1)

## Appendix VIII Descriptive Statistics from McLafferty's (2005) 30 item MANOP at Times 1, 2 and 3

31	Nurses who work with older adults do not need to be clever	239	0	5.0669	115	(48)	74	(31)	20	(8)	13	(5)	15	(6)	2	(1)
33	Most older adults have lost their sense of humour	239	0	4.9623	88	(37)	88	(37)	36	(15)	21	(9)	5	(2)	1	(0.5)
35	Most lecturers are out-of-date with the advances in looking after older adults	239	0	4.7531	57	(24)	106	(44)	48	(20)	18	(8)	8	(3)	2	(1)
37	Nurses in the older adults setting will encourage patients to self-care	238	1	4.2289	47	(20)	66	(28)	58	(24)	44	(14)	28	(12)	5	(2)
40	Most nursing students are pleasantly surprised at how many acutely ill patients there are in the care of older adults setting	235	4	3.5718	12	(5)	77	(320)	21	(9)	54	(23)	65	(27)	6	(3)
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	238	1	5.3837	148	(62)	62	(26)	15	(7)	0	(0)	9	(4)	3	(1)
44	Personality remains the same as we grow older	239	0	3.7029	32	(13)	66	(28)	31	(13)	39	(16)	51	(21)	21	(8)
46	Most lecturers will be fully supportive of nurses who want to work with older adults	239	0	5.0962	95	(40)	97	(41)	29	(12)	11	(5)	7	(3)	0	(0)
48	Most nurses will take time to chat to older patients	239	0	3.8912	30	(13)	74	(31)	42	(18)	38	(16)	43	(18)	12	(5)
50	Most nursing students are surprised that older adults can hold a sensible conversation	239	0	3.6778	20	(8)	67	(28)	44	(18)	45	(19)	50	(21)	13	(5)
52	It is essential that trained nurses who work with older adults are good role models	239	0	5.0251	93	(39)	92	(38)	37	(16)	6	(3)	6	(3)	5	(2)
54	Most nurses who work in the care of older adults settings want to be there	238	1	3.8667	25	(10)	64	(27)	59	(25)	39	(16)	46	(19)	5	(2)
56	Nursing students are well prepared for working with older adults	239	0	3.4603	6	(3)	69	(29)	39	(16)	53	(22)	59	(25)	13	(5)
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	238	1	4.0392	14	(6)	94	(39)	57	(24)	39	(16)	29	(12)	5	(2)
60	Most nurses who work with older adults are enthusiastic about their work	239	0	3.7615	21	(9)	61	(25)	58	(24)	44	(18)	49	(20)	6	(3)

# Appendix VIII Descriptive Statistics from McLafferty's (2005) 30 item MANOP at Times 1, 2 and 3

Time 3 MANOP 30 items (n = 205)		N		Mean	Strongly Agree		Agree		Slightly Agree		Slightly Disagree		Disagree		Strongly Disagree	
		Valid	Missing		N	%	N	%	N	%	N	%	N	%	N	%
2	Older people are treated as individuals in the acute clinical areas	205	0	3.5366	12	(6)	60	(29)	26	(13)	43	(21)	56	(27)	8	(4)
3	Most nursing students have little idea what to expect in the care of older adults' setting	204	1	3.0714	5	(2)	41	(20)	26	(13)	47	(23)	61	(30)	24	(12)
5	Caring for older adults is repetitive and boring	205	0	5.0293	78	(38)	79	(39)	29	(14)	14	(7)	5	(2)	0	(0)
7	Most patients in the care of older adults setting are incontinent of urine	204	1	4.3053	38	(18)	74	(36)	36	(17)	25	(12)	31	(15)	0	(0)
9	Nurses who work with older adults need to know the ageing process	205	0	5.0098	85	(42)	77	(38)	26	(13)	0	(0)	11	(5)	6	(3)
11	Most older adults are cantankerous	204	1	4.8010	45	(22)	98	(48)	32	(16)	12	(6)	8	(4)	1	(0.5)
13	Most lecturers think working with older people is second rate	204	1	4.8698	44	(22)	116	(57)	28	(14)	8	(4)	7	(3)	1	(0.5)
15	Older adults in the care of older adults setting are treated as individuals	203	2	3.7700	10	(5)	68	(33)	44	(22)	33	(16)	43	(21)	5	(2)
17	Most nursing students think the care of older adults setting is about basic nursing care	204	1	3.0259	8	(4)	36	(18)	18	(9)	45	(22)	85	(42)	12	(6)
19	There is more to learn in the care of older adults setting than basic nursing skills	205	0	4.6488	62	(30)	71	(35)	36	(18)	13	(6)	20	(10)	3	(2)
21	Patience is important no matter where you nurse	205	0	5.8049	173	(84)	26	(13)	4	(2)	2	(1)	0	(0)	0	(0)
23	All older adults are different from each other	204	1	5.3971	116	(51)	64	(31)	19	(9)	2	(1)	2	(1)	1	(0.5)
25	Most lecturers promote an interest in older adults	204	1	4.1404	16	(8)	81	(40)	52	(25)	26	(13)	29	(14)	0	(0)
27	Most nursing students are surprised that older adults are "normal"	205	0	3.8000	8	(4)	79	(39)	36	(18)	36	(18)	38	(19)	8	(4)
29	It is interesting to talk to older adults	205	0	5.1805	85	(41)	80	(39)	36	(18)	1	(0.5)	2	(1)	1	(0.5)

## Appendix VIII Descriptive Statistics from McLafferty's (2005) 30 item MANOP at Times 1, 2 and 3

31	Nurses who work with older adults do not need to be clever	205	0	5.1366	102	(50)	66	(32)	17	(8)	8	(4)	7	(3)	5	(2)
33	Most older adults have lost their sense of humour	204	1	5.1183	80	(39)	84	(41)	29	(14)	0	(0)	3	(1.5)	0	(0)
35	Most lecturers are out-of-date with the advances in looking after older adults	205	0	4.7805	42	(20)	106	(52)	35	(17)	16	(8)	4	(2)	2	(1)
37	Nurses in the older adults setting will encourage patients to self-care	205	0	4.2634	28	(14)	79	(39)	50	(24)	18	(9)	27	(13)	3	(1.5)
40	Most nursing students are pleasantly surprised at how many acutely ill patients there are in the care of older adults setting	203	2	3.6033	10	(5)	67	(33)	23	(11)	45	(22)	51	(25)	7	(3)
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	205	0	5.3854	126	(62)	52	(25)	18	(9)	1	(0.5)	5	(2)	3	(1.5)
44	Personality remains the same as we grow older	205	0	3.6098	22	(11)	55	(27)	35	(17)	23	(11)	54	(26)	16	(8)
46	Most lecturers will be fully supportive of nurses who want to work with older adults	205	0	5.0976	77	(38)	91	(44)	25	(12)	5	(2)	6	(3)	1	(0.5)
48	Most nurses will take time to chat to older patients	204	1	3.7022	16	(8)	60	(29)	42	(20)	33	(16)	39	19	14	(7)
50	Most nursing students are surprised that older adults can hold a sensible conversation	205	0	3.9610	20	(10)	87	(42)	20	(10)	31	(15)	37	(18)	10	(5)
52	It is essential that trained nurses who work with older adults are good role models	205	0	4.8537	67	(33)	81	(40)	34	(17)	9	(4)	11	(5)	3	(1.5)
54	Most nurses who work in the care of older adults settings want to be there	204	1	3.8867	17	(8)	72	(35)	34	(17)	39	(19)	36	(17)	6	(3)
56	Nursing students are well prepared for working with older adults	205	0	3.4146	3	(1.5)	53	(26)	42	(21)	44	(22)	54	(26)	9	(4)
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	205	0	3.9122	6	(3)	82	(40)	46	(22)	37	(18)	27	(13)	7	(3)
60	Most nurses who work with older adults are enthusiastic about their work	205	0	3.6341	11	(5)	56	(27)	47	(23)	39	(19)	42	(21)	10	(5)

## Appendix IX Z Scores from Skewness and Kurtosis Time 1 KOP and MANOP

N = 268 cases		TIME 1	TIME 2	TIME 3	TIME 1	TIME 2	TIME 3	Missing	Missing	Missing	Time 1
Item Number		kurtosis	kurtosis	kurtosis	skew	skew	skew	Data % T1	Data % T2	Data % T3	80/20
1 (KOP)	It would probably be better if most old people lived in residential units with people their own age	-2.30	-3.12	-3.19	4.58	2.62	2.87	0.4	10.4	22.4	
2 (MANOP)	Older people are treated as individuals in the acute clinical areas.	-4.30	-3.79	-3.81	-0.03	0.60	0.28	1.9	10.4	22.4	
3 (MANOP)	Most nursing students have little idea what to expect in the care of older adults' setting	-3.13	-3.74	-3.08	-2.76	-1.74	-1.69	1.1	10.4	22.8	
4 (KOP)	It would probably be better if most older people lived in residential units with younger people	5.47	0.29	1.86	7.66	5.81	5.84	0.7	10.4	23.1	
5 (MANOP)	Caring for older adults is repetitive and boring	3.57	6.11	1.92	8.02	9.01	6.11	0.0	10.4	22.4	
6 (KOP)	There is something different about most old people; it's hard to find out what makes them tick	-2.77	-3.24	-2.14	3.13	2.84	3.40	0.7	10.8	22.4	
7 (MANOP)	Most patients in the care of older adults setting are incontinent of urine	-1.67	-3.99	-2.80	5.03	1.78	2.80	1.5	10.4	23.1	
8 (KOP)	Most old people are really no different from anybody else; they're as easy to understand as younger people	-2.69	-1.55	-0.99	-3.47	-4.68	-4.05	0.0	10.4	22.4	
9 (MANOP)	Nurses who work with older adults need to know the ageing process	8.07	8.00	8.27	-9.75	-10.69	10.13	0.0	10.4	22.4	
10 (KOP)	Most old people get set in their ways and are unable to change.	-3.21	-3.08	-2.94	0.88	1.12	0.49	0.4	10.4	22.4	
11 (MANOP)	Most older adults are cantankerous	4.50	4.57	4.17	8.28	8.08	6.67	8.2	15.3	25.7	
12 (KOP)	Most old people are capable of new adjustments when the situation demands it	-1.71	0.81	0.41	-5.28	-5.51	-4.75	0.0	10.8	22.4	
13 (MANOP)	Most lecturers think working with older people is second rate	6.37	3.17	8.12	8.86	7.95	8.16	2.6	10.8	23.1	
14 (KOP)	Most old people would prefer to quit work as soon as pensions or their children can support them.	9.58	4.60	6.62	10.07	8.86	8.80	0.0	11.2	22.4	
15 (MANOP)	Older adults in the care of older adults setting are treated as individuals	-3.97	-3.95	-3.25	-2.52	-1.07	-1.56	3.4	11.6	23.5	
16 (KOP)	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.	8.91	3.83	3.73	-9.37	-8.06	-6.70	0.4	10.4	22.4	
17 (MANOP)	Most nursing students think the care of older adults setting is about basic nursing care	-4.27	0.54	-2.25	-2.08	-9.12	-3.72	1.1	10.4	23.1	
18 (KOP)	Most old people tend to let their homes become shabby and unattractive.	6.64	2.16	2.85	9.75	7.64	7.27	0.0	10.4	22.4	
19 (MANOP)	There is more to learn in the care of older adults setting than basic nursing skills	1.78	1.00	0.26	-7.73	-6.64	-5.67	0.0	10.4	22.4	
20	Most old people can generally be counted on to maintain a clean, attractive home	-1.48	-0.96	1.06	-5.35	-5.21	-4.67	0.7	10.8	22.4	

## Appendix IX Z Scores from Skewness and Kurtosis Time 1 KOP and MANOP

21 (KOP) (MANOP)	Patience is important no matter where you nurse	140.70	58.39	32.27	-33.21	-23.47	-18.25	0.0	10.8	22.4	85.4 St/Agr
22 (KOP)	It is foolish to claim that wisdom comes with age	-2.56	-3.84	-3.62	-4.29	-1.75	-1.42	0.4	11.2	22.4	
23 (MANOP)	All older adults are different from each other	9.72	21.03	15.53	-12.45	-12.87	-11.06	0.4	10.8	22.8	
24 (KOP)	People grow wiser with the coming of old age	-4.02	-3.45	-3.07	0.05	-0.68	-0.57	0.4	10.4	22.4	
25 (MANOP)	Most lecturers promote an interest in older adults	-2.52	-1.55	-2.15	-4.07	-3.19	-3.04	2.2	10.8	23.1	
26 (KOP)	Old people have too much power in business and politics	7.63	0.06	1.20	9.33	5.16	5.50	1.5	10.4	22.8	
27 (MANOP)	Most nursing students are surprised that older adults are “normal”	-4.54	-3.47	-3.09	1.20	-0.26	2.34	1.5	10.8	23.1	
28 (KOP)	Old people should have power in business and politics.	-3.60	-0.60	-2.08	-3.85	-5.42	-4.02	1.1	11.2	22.8	
29 (MANOP)	It is interesting to talk to older adults	7.50	11.58-	8.34	-7.50	-9.22	-7.31	0.0	10.4	22.4	
30 (KOP)	Most old people make one feel ill at ease	-3.20	-3.09	-2.46	3.41	2.05	3.26	1.5	13.1	22.8	
31 (MANOP)	Nurses who work with older adults do not need to be clever	8.60	4.27	8.19	11.30	9.19	10.33	0.0	10.4	22.4	
32 (KOP)	Most old people are very relaxing to be with	-2.05	-1.35	-2.12	-3.75	-1.72	-1.71	1.5	10.4	22.8	
33 (MANOP)	Most older adults have lost their sense of humour	7.21	1.94	6.48	8.83	6.43	7.45	0.7	10.4	22.8	
34 (KOP)	Most old people bore others by their insistence on talking about “the good old days”	4.01	0.39	0.64	8.27	5.77	4.84	0.0	10.4	22.4	
35 (MANOP)	Most lecturers are out-of-date with the advances in looking after older adults	12.50	3.24	5.49	10.31	6.33	6.85	1.5	10.8	22.8	
36 (KOP)	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	5.93	2.62	5.84	-9.02	-7.42	-8.40	0.4	10.4	22.4	
37 (MANOP)	Nurses in the older adults setting will encourage patients to self-care	0.13	-2.17	-1.13	-6.03	-2.75	-3.98	1.9	10.4	23.1	
38 (KOP)	Most old people spend too much time prying into the affairs of others and giving unsought advice	5.24	2.12	3.58	7.36	6.18	6.72	0.4	10.4	22.4	
39 (KOP)	One seldom hears old people complaining about the behaviour of the younger generation	-1.61	-1.80	-2.17	3.55	3.45	3.42	3.4	10.4	22.4	
40 (MANOP)	Most nursing students are pleasantly surprised at how many acutely ill patients there are in the care of older adults setting	-4.32	-4.34	-3.87	-1.12	-0.36	0.10	5.6	12.7	23.9	
41 (KOP)	Most old people tend to keep to themselves and give advice only when asked	-4.60	-4.31	-4.19	1.23	.082	0.15	1.5	10.4	22.4	
42 (MANOP)	It is essential that trained nurses motivate nursing students to feel positively about older adults	24.27	18.57	17.69	-16.86	-14.67	13.55	0.4	10.4	22.8	
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults.	7.33	8.04	11.00	9.71	10.57	10.14	1.1	10.4	23.1	

## Appendix IX Z Scores from Skewness and Kurtosis Time 1 KOP and MANOP

(KOP)										
44	Personality remains the same as we grow older	-4.45	-4.04	-3.88	0.43	-0.89	-0.42	0.4	10.4	22.8
(MANOP)										
45	When you think about it, old people have the same faults as anybody else.	12.92	13.81	13.45	-10.98	-10.92	-10.34	0.4	10.4	22.8
(KOP)										
46	Most lecturers will be fully supportive of nurses who want to work with older adults	10.72	4.63	8.62	-10.05	-7.96	-8.79	1.1	10.4	23.1
(MANOP)										
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in it.	22.99	7.24	14.63	17.53	10.55	11.38	0.4	10.4	23.1
(KOP)										
48	Most nurses will take time to chat to older patients	-2.93	-3.38	-3.07	-3.34	-1.88	-1.51	1.5	10.4	23.9
(MANOP)										
49	You can count on finding a nice residential neighborhood when there is a sizeable number of old people living in it	-1.72	-1.91	-1.20	-4.93	-4.00	-4.17	1.9	10.4	23.1
(KOP)										
50	Most nursing students are surprised that older adults can hold a sensible conversation	-3.55	-3.51	3-3.1.	3.12	0.91	2.85	2.6	10.4	23.1
(MANOP)										
51	There are a few exceptions, but in general most old people are pretty much alike	3.50	1.30	3.91	8.50	6.88	7.36	1.1	10.4	22.8
(KOP)										
52	It is essential that trained nurses who work with older adults are good role models	3.71	9.53	4.06	-8.31	-10.06	-7.43	0.4	10.4	22.8
(MANOP)										
53	It is evident that most old people are very different from one another	7.35	5.98	8.50	-9.32	8.28	-9.12	0.4	10.4	22.8
(KOP)										
54	Most nurses who work in the care of older adults settings want to be there	-3.36	-3.15	-3.11	-3.11	-1.19	-1.74	2.2	11.2	23.5
(MANOP)										
55	Most old people should be more concerned with their personal appearance; they're too untidy	5.80	2.68	0.01	7.87	6.82	4.82	0.4	11.6	22.8
(KOP)										
56	Nursing students are well prepared for working with older adults	-4.24	-3.82	-3.51	0.46	-0.26	-0.15	1.9	10.4	23.5
(MANOP)										
57	Most old people seem quite clean and neat in their personal appearance.	1.47	-0.23	2.30	-6.86	-5.51	-6.59	0.0	10.4	22.4
(KOP)										
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	-3.19	-1.77	-2.08	-3.60	-3.65	-3.39	1.9	10.8	22.8
(MANOP)										
59	Most old people are irritable, grouchy, and unpleasant.	8.44	6.69	5.01	7.87	8.62	7.22	0.0	10.8	22.4
(KOP)										
60	Most nurses who work with older adults are enthusiastic	-3.14	-3.17	-3.01	-2.43	-0.65	-0.96	1.1	10.4	23.1
(MANOP)										
61	Most old people are cheerful, agreeable, and good humoured	0.33	-1.49	-0.95	5.00	-3.07	-3.13	0.7	10.4	22.4
(KOP)										
62	Most old people are constantly complaining about the behaviour of the younger generation	-3.33	-1.54	0.93	1.83	3.78	3.78	0.7	10.8	22.4
(KOP)										
63	Most old people make excessive demands for love and reassurance than anyone else.	4.59	3.08	2.64	8.26	6.27	6.33	0.4	10.8	22.4
(KOP)										
64	Most old people need no more love and reassurance than anyone else	-4.50	3.48	3.41	-1.37	-1.98	-1.94	0.7	10.4	22.4
(KOP)										



## Appendix X Correlation Matrix 34 Item KOP Time 1

Time 1 Exploratory Principal Component Analysis asking for an unrotated factor solution with no a priori factor structure selected

Correlation Matrix



Appendix X  
Correlation Matrix 3

## Appendix XI Iterations of a single factor solution of Kogan's (1961) KOP

### Single-factor solution of 17 KOP items at Time 2

Component Matrix <sup>a</sup>		Component
		1
59	Most old people are irritable, grouchy, and unpleasant	<b>.761</b>
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults	<b>.728</b>
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in	<b>.680</b>
38	Most old people spend too much time prying into the affairs of others and giving unsought advice	<b>.679</b>
51	There are a few exceptions, but in general most old people are pretty much alike	<b>.672</b>
61	Most old people are cheerful, agreeable, and good humoured	<b>-.646</b>
63	Most old people make more excessive demands for love and reassurance than anyone else	<b>.607</b>
18	Most old people tend to let their homes become shabby and unattractive	<b>.585</b>
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	<b>-.576</b>
62	Most old people are constantly complaining about the behaviour of the younger generation	<b>.564</b>
16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody	<b>-.563</b>
14	Most old people would prefer to quit work as soon as pensions or their children can support them	<b>.546</b>
57	Most old people seem quite clean and neat in their personal appearance	<b>-.513</b>
55	Most old people should be more concerned with their personal appearance; they're too untidy	<b>.475</b>
10	Most old people get set in their ways and are unable to change	<b>.410</b>
49	You can count on finding a nice residential neighbourhood when there is a sizeable number of old people living in it	<b>-.254</b>
41	Most old people tend to keep to themselves and give advice only when asked	<b>.142</b>

Extraction Method: Principal Component Analysis.

a. 1 components extracted.



## Appendix XI Iterations of a single factor solution of Kogan's (1961) KOP

### Single-factor solution from 15 KOP items at Time 2

Component Matrix <sup>a</sup>		Component
		1
59	Most old people are irritable, grouchy, and unpleasant	<b>.770</b>
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults	<b>.740</b>
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in	<b>.699</b>
38	Most old people spend too much time prying into the affairs of others and giving unsought advice	<b>.669</b>
51	There are a few exceptions, but in general most old people are pretty much alike	<b>.656</b>
61	Most old people are cheerful, agreeable, and good humoured	<b>-.632</b>
18	Most old people tend to let their homes become shabby and unattractive	<b>.605</b>
63	Most old people make more excessive demands for love and reassurance than anyone else	<b>.594</b>
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	<b>-.582</b>
16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody	<b>-.579</b>
14	Most old people would prefer to quit work as soon as pensions or their children can support them	<b>.558</b>
57	Most old people seem quite clean and neat in their personal appearance	<b>-.519</b>
55	Most old people should be more concerned with their personal appearance; they're too untidy	<b>.479</b>
10	Most old people get set in their ways and are unable to change	<b>.393</b>
62	One seldom hears old people complaining about the behaviour of the younger generation	<b>-.059</b>
Extraction Method: Principal Component Analysis.		

a. 1 components extracted.



Appendix XI 15 Item  
KOP Single Time 2 r.:

## Appendix XI Iterations of a single factor solution of Kogan's (1961) KOP

### Single-factor solution of 13 KOP items at Time 2

Component Matrix <sup>a</sup>		Component
		1
59	Most old people are irritable, grouchy, and unpleasant	<b>.764</b>
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults	<b>.747</b>
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in	<b>.708</b>
38	Most old people spend too much time prying into the affairs of others and giving unsought advice	<b>.660</b>
51	There are a few exceptions, but in general most old people are pretty much alike	<b>.652</b>
61	Most old people are cheerful, agreeable, and good humoured	<b>-.632</b>
18	Most old people tend to let their homes become shabby and unattractive	<b>.619</b>
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	<b>-.587</b>
63	Most old people make more excessive demands for love and reassurance than anyone else	<b>.583</b>
16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody	<b>-.577</b>
14	Most old people would prefer to quit work as soon as pensions or their children can support them	<b>.563</b>
57	Most old people seem quite clean and neat in their personal appearance	<b>-.523</b>
55	Most old people should be more concerned with their personal appearance; they're too untidy	<b>.488</b>
Extraction Method: Principal Component Analysis.		

a. 1 components extracted.



Appendix XI 13 Item  
KOP Time 2.spv

## Appendix XI Iterations of a single factor solution of Kogan's (1961) KOP

### Single factor solution of 13 KOP items at Time 1

**Component Matrix<sup>a</sup>**

		Component
		1
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in it.	<b>.598</b>
59	Most old people are irritable, grouchy, and unpleasant.	<b>.578</b>
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults.	<b>.566</b>
38	Most old people spend too much time prying into the affairs of others and giving unsought advice.	<b>.539</b>
55	Most old people should be more concerned with their personal appearance; they're too untidy	<b>.538</b>
63	Most old people make more excessive demands for love and reassurance than anyone else.	<b>.510</b>
18	Most old people tend to let their homes become shabby and unattractive.	<b>.474</b>
14	Most old people would prefer to quit work as soon as pensions or their children can support them.	<b>.459</b>
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	<b>-.444</b>
57	Most old people seem quite clean and neat in their personal appearance.	<b>-.440</b>
61	Most old people are cheerful, agreeable, and good humoured	<b>-.425</b>
16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody.	<b>-.416</b>
51	There are a few exceptions, but in general most old people are pretty much alike.	<b>.345</b>

Extraction Method: Principal Component Analysis.

a. 1 components extracted.



**Appendix XI 13 Item  
Single Factor KOP Ti**

## Appendix XI Iterations of a single factor solution of Kogan's (1961) KOP

### Single-factor solution of 12 KOP items at Time 1

Component Matrix <sup>a</sup>		Component
		1
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults	<b>.724</b>
59	Most old people are irritable, grouchy, and unpleasant	<b>.664</b>
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in	<b>.626</b>
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	<b>-.599</b>
63	Most old people make more excessive demands for love and reassurance than anyone else	<b>.565</b>
57	Most old people seem quite clean and neat in their personal appearance	<b>-.556</b>
55	Most old people should be more concerned with their personal appearance; they're too untidy	<b>.547</b>
38	Most old people spend too much time prying into the affairs of others and giving unsought advice	<b>.541</b>
18	Most old people tend to let their homes become shabby and unattractive	<b>.520</b>
14	Most old people would prefer to quit work as soon as pensions or their children can support them	<b>.487</b>
61	Most old people are cheerful, agreeable, and good humoured	<b>-.460</b>
16	Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody	<b>-.358</b>

Extraction Method: Principal Component Analysis.

a. 1 components extracted.



Appendix XI 12 Item  
Single KOP Time 1.sj

## Appendix XI Iterations of a single factor solution of Kogan's (1961) KOP

### Single-factor solution of 12 KOP items at Time 3

Component Matrix<sup>a</sup>

		Component 1
43	If old people expect to be liked, their first step is to try to get rid of their irritating faults	<b>.737</b>
59	Most old people are irritable, grouchy, and unpleasant	<b>.677</b>
47	In order to maintain a nice residential neighbourhood, it would be best if too many old people did not live in	<b>.635</b>
36	One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences	<b>-.580</b>
63	Most old people make more excessive demands for love and reassurance than anyone else	<b>.578</b>
38	Most old people spend too much time prying into the affairs of others and giving unsought advice	<b>.562</b>
55	Most old people should be more concerned with their personal appearance; they're too untidy	<b>.549</b>
57	Most old people seem quite clean and neat in their personal appearance	<b>-.546</b>
18	Most old people tend to let their homes become shabby and unattractive	<b>.534</b>
14	Most old people would prefer to quit work as soon as pensions or their children can support them	<b>.455</b>
61	Most old people are cheerful, agreeable, and good humoured	<b>-.453</b>

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

The factor solution loaded with all 11 items at Time 1 and Time 2



Appendix XI 12 Item  
Single KOP Time 3.sj

## Appendix XI Iterations of a single factor solution of Kogan's (1961) KOP

Final solution single Factor on Page 80.



Appendix XI 11 Item  
Single KOP Time 1.sj



Appendix XI 11 Item  
KOP Time 2.spv



Appendix XI 11 Item  
KOP Time 3.spv



## Appendix XII Reliability Analysis of 11 Item KOP Inter Item Matrix at Times 1, 2 and 3

Reliability analysis Inter Item Matrix Time 1



**Appendix XII**  
**Reliability Analysis 1**

Reliability analysis Inter Item Matrix Time 2



**Appendix XII**  
**Reliability Analysis1:**

Reliability analysis Inter Item Matrix Time 1



**Appendix XII**  
**Reliability Analysis 1**

## Appendix XIII Correlation Matrix 28 Item MANOP Time 1

Time 1 Exploratory Principal Component Analysis asking for an unrotated factor solution with no a priori factor structure selected



**Appendix XIII**  
**Correlation Matrix 28**

## Appendix XIV Correlation Matrix 28 Item MANOP Time 2

Time 2 Exploratory Principal Component Analysis asking for an unrotated factor solution with no a priori factor structure selected



**Appendix X IV**  
**Correlation Matrix 2**

## Appendix XV Iterations of a two-factor solution of MANOP

### Two-factor solution of 16 MANOP items at Time 3

Rotated Component Matrix<sup>a</sup>

		Component	
		1	2
60	Most nurses who work with older adults are enthusiastic about their work	<b>.681</b>	-.002
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.676</b>	-.128
2	Older people are treated as individuals in the acute clinical areas	<b>.637</b>	-.051
54	Most nurses who work in the care of older adults settings want to be there	<b>.599</b>	-.138
48	Most nurses will take time to chat to older patients	<b>.561</b>	.137
37	Nurses in the older adults setting will encourage patients to self-care	<b>.552</b>	.115
56	Nursing students are well prepared for working with older adults	<b>.518</b>	.117
3	Most nursing students have little idea what to expect in the care of older adults setting	-.220	.032
23	All older adults are different from each other	.116	<b>.723</b>
29	It is interesting to talk to older adults	.090	<b>.672</b>
19	There is more to learn in the care of older adults setting than basic nursing skills	-.104	<b>.591</b>
31	Nurses who work with older adults do not need to be clever	.000	<b>-.554</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	-.261	<b>.458</b>
7	Most patients in the care of older adults setting are incontinent of urine	-.228	<b>-.423</b>
5	Caring for older adults is repetitive and boring	-.349	<b>-.423</b>
52	It is essential that trained nurses who work with older adults are good role models	-.191	<b>.417</b>

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.



## Appendix XV Iterations of a two-factor solution of MANOP

### Two-factor solution of 15 MANOP items at Time 2

**Rotated Component Matrix<sup>a</sup>**

		Component	
		1	2
37	Nurses in the older adults setting will encourage patients to self-care	<b>.688</b>	.011
60	Most nurses who work with older adults are enthusiastic about their work	<b>.631</b>	.250
54	Most nurses who work in the care of older adults settings want to be there	<b>.602</b>	-.053
2	Older people are treated as individuals in the acute clinical areas	<b>.588</b>	-.033
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.532</b>	.041
5	Caring for older adults is repetitive and boring	<b>-.515</b>	-.231
56	Nursing students are well prepared for working with older adults	<b>.502</b>	.063
7	Most patients in the care of older adults setting are incontinent of urine	<b>-.417</b>	-.233
48	Most nurses will take time to chat to older patients	<b>.434</b>	.211
29	It is interesting to talk to older adults	.187	<b>.681</b>
23	All older adults are different from each other	.214	<b>.673</b>
52	It is essential that trained nurses who work with older adults are good role models	-.135	<b>.631</b>
19	There is more to learn in the care of older adults setting than basic nursing skills	.005	<b>.608</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	.101	<b>.573</b>
31	Nurses who work with older adults do not need to be clever	-.097	<b>-.565</b>

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.



## Appendix XV Iterations of a two-factor solution of MANOP

### Two-factor solution of 15 MANOP items at Time 1

**Rotated Component Matrix<sup>a</sup>**

		Component	
		1	2
60	Most nurses who work with older adults are enthusiastic about their work	<b>.809</b>	.013
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.644</b>	-.092
54	Most nurses who work in the care of older adults settings want to be there	<b>.610</b>	-.089
48	Most nurses will take time to chat to older patients	<b>.607</b>	-.006
2	Older people are treated as individuals in the acute clinical areas	<b>.584</b>	-.138
56	Nursing students are well prepared for working with older adults	<b>.522</b>	-.015
37	Nurses in the older adults setting will encourage patients to self-care	<b>.458</b>	.146
5	Caring for older adults is repetitive and boring	<b>-.413</b>	-.177
7	Most patients in the care of older adults settings are incontinent of urine	-.238	-.211
19	There is more to learn in the care of older adults setting than basic nursing skills	.015	<b>.629</b>
23	All older adults are different from each other	.126	<b>.582</b>
52	It is essential that trained nurses who work with older adults are good role models	-.045	<b>.580</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	.014	<b>.550</b>
29	It is interesting to talk to older Adults	.015	<b>.523</b>
31	Nurses who work with older adults do not need to be clever	.079	-.318

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.  
 a. Rotation converged in 3 iterations.



## Appendix XV Iterations of a two-factor solution of MANOP

### Two-factor solution of 13 MANOP items at Time 2

**Rotated Component Matrix<sup>a</sup>**

		Component	
		1	2
60	Most nurses who work with older adults are enthusiastic about their work	<b>.731</b>	.114
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.649</b>	-.089
54	Most nurses who work in the care of older adults settings want to be there	<b>.611</b>	-.087
48	Most nurses will take time to chat to older patients	<b>.604</b>	-.008
2	Older people are treated as individuals in the acute clinical areas	<b>.584</b>	-.135
56	Nursing students are well prepared for working with older adults	<b>.517</b>	-.022
37	Nurses in the older adults setting will encourage patients to self-care	<b>.461</b>	.132
5	Caring for older adults is repetitive and boring	<b>-.415</b>	-.179
19	There is more to learn in the care of older adults setting than basic nursing skills	.010	<b>.643</b>
23	All older adults are different from each other	.114	<b>.587</b>
52	It is essential that trained nurses who work with older adults are good role models	-.075	<b>.572</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	.014	<b>.551</b>
29	It is interesting to talk to older Adults	.018	<b>.519</b>

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.  
a. Rotation converged in 3 iterations.



## Appendix XV Iterations of a two-factor solution of MANOP

### Two -factor solution of 13 MANOP items at Time 3

**Rotated Component Matrix<sup>a</sup>**

		Component	
		1	2
60	Most nurses who work with older adults are enthusiastic about their work	<b>.716</b>	.072
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.611</b>	-.132
54	Most nurses who work in the care of older adults settings want to be there	<b>.601</b>	-.143
48	Most nurses will take time to chat to older patients	<b>.598</b>	-.009
2	Older people are treated as individuals in the acute clinical areas	<b>.569</b>	-.140
56	Nursing students are well prepared for working with older adults	<b>.522</b>	-.017
37	Nurses in the older adults setting will encourage patients to self-care	<b>.432</b>	.161
5	Caring for older adults is repetitive and boring	-.348	-.189
19	There is more to learn in the care of older adults setting than basic nursing skills	.010	<b>.641</b>
23	All older adults are different from each other	.131	<b>.586</b>
52	It is essential that trained nurses who work with older adults are good role models	-.051	<b>.580</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	.010	<b>.556</b>
29	It is interesting to talk to older Adults	.018	<b>.522</b>

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.  
 a. Rotation converged in 3 iterations.





## Appendix XV Iterations of a two-factor solution of MANOP

### Two-factor solution of 12 MANOP items at Time 2

**Rotated Component Matrix<sup>a</sup>**

		Component	
		1	2
54	Most nurses who work in the care of older adults settings want to be there	<b>.718</b>	-.053
60	Most nurses who work with older adults are enthusiastic about their work	<b>.700</b>	.224
37	Nurses in the older adults setting will encourage patients to self-care	<b>.675</b>	.013
2	Older people are treated as individuals in the acute clinical areas	<b>.620</b>	-.049
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.577</b>	.061
56	Nursing students are well prepared for working with older adults	<b>.455</b>	.116
48	Most nurses will take time to chat to older patients	<b>.455</b>	.191
52	It is essential that trained nurses who work with older adults are good role models	-.072	<b>.687</b>
23	All older adults are different from each other	.189	<b>.684</b>
29	It is interesting to talk to older adults	.147	<b>.668</b>
19	There is more to learn in the care of older adults setting than basic nursing skills	.022	<b>.618</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	.086	<b>.615</b>

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.  
 a. Rotation converged in 3 iterations.



## Appendix XV Iterations of a two-factor solution of MANOP

### Two-factor solution of 12 MANOP items at Time 3

**Rotated Component Matrix<sup>a</sup>**

		Component	
		1	2
60	Most nurses who work with older adults are enthusiastic about their work	<b>.716</b>	.042
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.707</b>	-.098
2	Older people are treated as individuals in the acute clinical areas	<b>.634</b>	-.142
54	Most nurses who work in the care of older adults settings want to be there	<b>.599</b>	-.167
37	Nurses in the older adults setting will encourage patients to self-care	<b>.574</b>	.088
48	Most nurses will take time to chat to older patients	<b>.570</b>	.099
56	Nursing students are well prepared for working with older adults	<b>.508</b>	.051
23	All older adults are different from each other	.189	<b>.760</b>
52	It is essential that trained nurses who work with older adults are good role models	-.080	<b>.618</b>
19	There is more to learn in the care of older adults setting than basic nursing skills	-.040	<b>.614</b>
29	It is interesting to talk to older adults	.113	<b>.577</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	-.200	<b>.562</b>

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.  
 a. Rotation converged in 3 iterations.



## Appendix XV Iterations of a two-factor solution of MANOP

### Two-factor solution of 12 MANOP items at Time 1

Rotated Component Matrix<sup>a</sup>

		Component	
		1	2
60	Most nurses who work with older adults are enthusiastic about their work	<b>.808</b>	.056
58	Most nurses who work in the care of older adults setting have excellent interpersonal skills	<b>.666</b>	-.004
54	Most nurses who work in the care of older adults settings want to be there	<b>.639</b>	-.038
48	Most nurses will take time to chat to older patients	<b>.621</b>	-.001
2	Older people are treated as individuals in the acute clinical areas	<b>.597</b>	-.109
56	Nursing students are well prepared for working with older adults	<b>.522</b>	-.029
37	Nurses in the older adults setting will encourage patients to self-care	<b>.439</b>	.154
19	There is more to learn in the care of older adults setting than basic nursing skills	.011	<b>.675</b>
52	It is essential that trained nurses who work with older adults are good role models	-.065	<b>.638</b>
23	All older adults are different from each other	.129	<b>.626</b>
42	It is essential that trained nurses motivate nursing students to feel positively about older adults	-.002	<b>.579</b>
29	It is interesting to talk to older Adults	-.037	<b>.423</b>

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.  
 a. Rotation converged in 3 iterations.





## Appendix XVI Reliability Analysis 7 Item Factor MANOP Inter Item Matrix Times 1, 2 and 3

Reliability Analysis 7 Item Factor MANOP Inter Item Matrix Time 1



**Appendix XVI**  
**Reliability Analysis 7**

Reliability Analysis 7 Item Factor MANOP Inter Item Matrix Time 2



**Appendix XVI**  
**Reliability Analysis 7**

Reliability Analysis 7 Item Factor MANOP Inter Item Matrix Time 3



**Appendix XVI**  
**Reliability Analysis 7**

## Appendix XVII Reliability Analysis 5 Item Factor MANOP Inter Item Matrix Times 1, 2 and 3

Reliability Analysis 5 Item Factor MANOP Inter Item Matrix Time 1



**Appendix XVII**  
**Reliability Analysis !**

Reliability Analysis 5 Item Factor MANOP Inter Item Matrix Time 2



**Appendix XVII**  
**Reliability Analysis !**

Reliability Analysis 5 Item Factor MANOP Inter Item Matrix Time 3



**Reliability Analysis**  
**5 Item MANOP Inter**

